

# PUBLICATIONS OF ZDENĚK P. BAŽANT

December 20, 2016

## 1 Books

### 1.1 Textbooks and Monographs

B1. Bažant, Z.P. (1966). *Creep of Concrete in Structural Analysis* (in Czech). State Publishers of Technical Literature (SNTL), Prague (monograph, 186 pp.).

B2. Bažant, Z.P., and Cedolin, L. (1991). *Stability of Structures: Elastic, Inelastic, Fracture and Damage Theories*, Oxford University Press, New York; 2nd. ed. Dover Publications, New York 2003 (1011 pp. + xxiv pp.); 3rd ed. World Scientific Publishing, Singapore–New Jersey–London 2010.

B3. Bažant, Z.P., and Kaplan, M.F. (1996). *Concrete at High Temperatures: Material Properties and Mathematical Models*, Longman (Addison-Wesley), London (monograph and reference volume, 412 + xii pp.) (2nd printing Pearson Education, Edinburgh, 2002).

B4. Bažant, Z.P., and Planas, J. (1998). *Fracture and Size Effect in Concrete and Other Quasibrittle Materials*. CRC Press, Boca Raton and London (textbook and reference volume, 616 + xxii pp.).

B5. Jirásek, M., and Bažant, Z.P. (2002). *Inelastic Analysis of Structures*. J. Wiley & Sons, London and New York (textbook and reference volume, 735 + xviii pp.).

B6. Bažant, Z.P. (2002). *Scaling of Structural Strength*. Hermes Penton Science (Kogan Page Science), London; 2nd updated ed., Elsevier, London 2005 (Errata: [www.civil.northwestern.edu/people/bazant.html](http://www.civil.northwestern.edu/people/bazant.html)) (French translation (with updates), *Introduction aux effets d'échelle sur la résistance des structures*, Hermès Science Publ., Paris 2004).

### 1.2 Published Lecture Notes

L1. Bažant, Z.P. (1979). *Advanced Topics in Inelasticity and Failure of Concrete* (text of intensive course given at Swedish Cem. & Conr. Res. Inst., Royal Inst. of Techn.), publ. by Gotab, Stockholm (370 pp.); republished with updates by *Ecole des Ponts et Chaussée*, Paris (1980).

L2. Bažant, Z.P., Schnobrich, W.C., and Scordelis, A.C. (1978). *Analysis of Reinforced Concrete Structures by Finite Element Method* (intensive course text), Politecnico di Milano (334 pp.); republished with updates by Technische Hochschule Wien (1981).

### 1.3 Books Edited, with Chapters Contributed

E1. Bažant, Z.P., and Wittmann, F.H. Eds. (1982). *Creep and Shrinkage in Concrete Structures*, J. Wiley, London (363 pp.).

E2. Bažant, Z.P., Editor (1983). *Mechanics of Geomaterials: Rocks, Concretes, Soils*, Preprints of IUTAM Prager Symposium, Northwestern University, Evanston, IL (664 pp.).

E3. Bažant, Z.P., Editor (1985). *Mechanics of Geomaterials: Rocks, Concretes, Soils*, J. Wiley & Sons, Chichester, New York (610 pp.) (Proc., IUTAM Symposium held at Northwestern University, Sept, 1983).

E4. Bažant, Z.P., Editor (1986). *Creep and Shrinkage of Concrete: Mathematical Modeling*, Preprints of Fourth RILEM International Symposium, Northwestern University (990 pp.).

E5. Bažant, Z.P., Editor (1988). *Mathematical Modeling of Creep and Shrinkage of Concrete*, John Wiley & Sons, Chichester and New York.

E6. Mazars, J., and Bažant, Z.P., Editors (1989), *Damage, Localization and Size Effect* (Proc. of France-U.S. Workshop, held at E.N.S. in Cachan, France), Elsevier, London (also Preprints, 1988).

E7. Li, V.C., and Bažant, Z.P., Editors (1989). *Fracture Mechanics: Applications to Concrete*, Special Publ. SP-118, Am. Concrete Inst., Detroit.

E8. Bažant, Z.P., Editor (1991). *Current Trends in Concrete Fracture Research* (reprinted from Special Issue of Intern. J. of Fracture 51, 1991, No.1-2), Kluwer Academic Publishers, Dordrecht—Boston (202 pp.).

E9. Bažant, Z.P., Editor (1992). *Fracture Mechanics of Concrete Structures*, Proc. of the First Intern. Conf. (FraMCoS-1), held in Breckenridge, Colorado, June 1–5, Elsevier, London (1040 pp.).

E10. Gerstle, W., and Bažant, Z.P., Editors (1992). *Concrete Design Based on Fracture Mechanics*, Special Publ. SP-134, Am. Concrete Inst., Detroit.

E11. Dempsey, J.P., Bažant, Z.P., Rajapakse, Y.D.S., Sunder, S. Shyam, Editors (1993). “Ice Mechanics 1993” (Proc. of a Symposium as part of ASCE–ASME–SES Joint Mechanics Meeting held in Charlottesville, VA.), AMD Vol. 163, Am. Soc. of Mech. Engrs., New York, 1993.

E12. Bažant, Z.P., and Carol, I., Editors (1993). *Creep and Shrinkage of Concrete* (Proc., ConCreep-5—5th Intern. RILEM Symposium held in Barcelona, Sept. 9–6),

E & FN Spon (Chapman & Hall), London, U.K. (936 + xx pages).

E13. Mihashi, H., Okamura, H., and Bažant, Z.P., Editors (1994). *Size effect in concrete structures* (Proc., Japan Concrete Institute Intern. Workshop held in Sendai, Japan, Oct.31–Nov.2, 1993). E & FN Spon, London-New York (556 + xiv pages).

E14. Bažant, Z.P., Bittnar, Z., Jirásek, M., and Mazars, J., Editors (1994). *Fracture and Damage in Quasi-brittle Structures: Experiment, Theory and Computer Modeling* (Proc., Europe-U.S. Workshop held at Czech Techn. Univ., Prague, Sept. 21–23, 1994, sponsored by U.S.–NSF and European Union), E & FN Spon, London–New York (pp. 647 + xiv).

E15. Bažant, Z.P., and Rajapakse, Y.D.S., Editors (1999). *Fracture Scaling* (Proc., ONR Workshop on Fracture Scaling, University of Maryland, College Park, June 10–12, 1999; special issue reprinted from *Int. J. of Fracture*, Vol. 95, 1999.), Kluwer Academic Publishers, Dordrecht.

E16. Ulm, F.-J., Bažant, Z.P., and Wittmann, F.H., Editors (2001). *Creep, Shrinkage and Durability Mechanics of Concrete and Other Quasi-Brittle Materials*. (Proc., 6th Intern. Conf., CONCREEP-6, held at MIT, Cambridge), Elsevier, Amsterdam 2001 (811 + xviii pp.)

E17. Qu, Jianmin, and Bažant, Z.P., Guest Editors (2002). *A Volume in Honor of Jan D. Achenbach*, special issue of *Int. J. of Solids and Structures* 39 (21–22, Oct.–Nov.), Pergamon Press (Elsevier Science Ltd.).

E18. Bažant, Z.P., Carol, I., and Steinmann, P., Guest Editors (2003). *Damage and Failure Analysis of Materials*, special issue of *Int. J. of Engrg. Science* 41 (13–14, August), Pergamon Press (Elsevier Science Ltd.)

E19. Bažant, Z.P., Christensen, R.A., and Torquato, S., Guest Editors (2003), *Advances in Composite Materials—A Volume in Honor of George G. Dvorak*, special issue of *Int. J. of Solids and Structures* 40, Pergamon Press (Elsevier Science Ltd.).

E20. Xi, Y., Bažant, Z.P., Pijaudier-Cabot, G., and Bittnar, Z., Guest Editors (2005). *Model-Based Simulation of Durability of Materials and Structures*, special issue of *J. of Materials Engineering ASCE* 17 (3), 239–369 (with Editorial, pp. 239–240).

## 2 State-of-Art Articles and Research Review Articles

S1. Bažant, Z.P. (1966). “Analysis of framed structures, Part II,” *Applied Mechanics Surveys*, ed. by Abramson et al. (Appl. Mech. Reviews), Spartan Books, Washington, D.C., 453–464.

S2. Bažant, Z.P. (1975). “Theory of creep and shrinkage in concrete structures: A precis of recent developments”, *Mechanics Today*, ed. by S. Nemat-Nasser (Am. Acad. Mech.), Pergamon Press 1975, Vol. 2, pp. 1–93.

S3. Bažant, Z.P. (1978). “Inelasticity and failure of concrete: A survey of recent progress,” *Proc. of Seminar* on “Analisi delle Strutture in Cemento Armato Mediante

il Metodo degli Elementi Finiti,” held to commemorate 50th anniversary of School of Reinf. Concrete, Politecnico di Milano, Italy, 5–59.

S4. Bažant, Z.P. (1981). “Advances in deformation and fracture models for concrete,” Introductory report to *IABSE Colloquium “Advanced Mechanics of Reinforced Concrete,”* held in Delft, 1981. Int. Assoc. for Bridge & Struct. Engrg., Zürich, 9–39.

S5. Bažant, Z.P. (1982). “Friction and cracking in constitutive modeling of geomaterials,” Proc., *Int. Conf. of Soil Mechanics*, Commemorative Meeting of Mexican Soc. of Soil Mechanics, Mexico City, 41–48.

S6. Bažant, Z.P. (1982). “Mathematical models of nonlinear behavior and fracture of concrete,” in *Nonlinear Numerical Analysis of Reinforced Concrete*, ed. by L. E. Schwer, Am. Soc. of Mech. Engrs., New York, 1–25.

S7. Bažant, Z.P., L. Cedolin and P. Gambarova (1982), “Bruchmechanik von Stahlbeton” (Fracture mechanics of reinforced concrete), in *Finite Elemente in der Bruchmechanik*, ed. by H. P. Rossmanith, Springer-Verlag, Wien, 295–332.

S8. ACI Committee 209 (1982). Report No. ACI 209 R-82 on “Prediction of creep, shrinkage and temperature effects in concrete structures,” prepared by D. J. Carreira, Z.P. Bažant and D. E. Branson, *ACI Special Publication SP-76*, Am. Concrete Inst. Detroit, 193–300.

S9. Bažant, Z.P. (1982). “Mathematical models for creep and shrinkage of concrete,” Chapter 7 in *Creep and Shrinkage in Concrete Structures*, Z.P. Bažant and F. H. Wittmann, eds., J. Wiley & Sons, London, 1982, 163–256.

S10. Subcommittee 7 (1982) (chaired by Z.P. Bažant). “Time dependent effects,” Chap. 6 in *State-of-the-Art Report on Finite Element Analysis of Reinforced Concrete*, prepared by ASCE Str. Div. Task Committee chaired by A. Nilson, Am. Soc. of Civil Engrs., New York, 309–400.

S11. Bažant, Z.P. (1983). “Fracture in concrete and reinforced concrete,” Preprints, IUTAM Prager Symposium on *Mechanics of Geomaterials: Rocks, Concretes, Soils*, ed. by Z.P. Bažant, Northwestern Univ., 281–316.

S12. Bažant, Z.P. (1984). “Numerical simulation of progressive fracture in concrete structures: recent developments,” Preprints, *Int. Conf. on Computer-Aided Analysis and Design of Concrete Structures*, held in Split, Yugoslavia, ed. by E. Hinton, R. Owen and F. Damjanić, University of Wales, Swansea, U.K., 1–17.

S13. Belytschko, T. and Bažant, Z.P. (1984). “Strain-softening materials and finite element solutions,” Proc., *ASME Symposium on Constitutive Equations: Macro, Micro and Computational Aspects*, held at ASME Winter Annual Meeting, New Orleans, ed. by K. Willam, 253–272.

S14. Bažant, Z.P. (1985). “Mechanics of fracture and progressive cracking in concrete structures,” Chap. 1 in *Fracture Mechanics of Concrete: Structural Application and Numerical Calculation*, G. C. Sih and A. DiTommaso, eds., Martinus Nijhoff, Dordrecht & Boston, pp. 1–94.

S15. Bažant, Z.P. (1985). “Fracture in concrete and reinforced concrete,” Chapter 13 in *Mechanics of Geoma-*

terials: Rocks, Concretes, Soils (Proc. of IUTAM Prager Symposium held at Northw. Univ.) ed. by Z.P. Bažant, J. Wiley, London, 259–303.

S16. Bažant, Z.P. (1986). “Fracture mechanics and strain-softening of concrete,” in *Finite Element Analysis of Reinforced Concrete Structures*, ed. by C. Meyer and H. Okamura, ASCE, New York, 121–150.

S17. Bažant, Z.P. (1986). “Mechanics of distributed cracking,” *Appl. Mech. Reviews ASME*, 39, 675–705.

S18. Bažant, Z.P., and Belytschko, T. (1987). “Strain-softening continuum damage: localization and size effect,” Proc. 2nd Int. Conf. on “*Constitutive Laws of Engineering Materials: Theory and Applications*” (held at Tucson, AZ), ed. by C. S. Desai et al., Elsevier, NY, 11–33.

S19. Bažant, Z.P. (1987). “Nonstationary long-time processes causing loss of serviceability,” Proc. IABSE Colloquium on *Computational Mechanics of Concrete Structures—Advances and Applications* (in Delft, Netherlands, Aug. 1987), Int. Assoc. for Bridge and Struct. Engrg., Zürich, 261–284.

S20. RILEM Committee TC-69 (1987). (Z.P. Bažant, Chairman and Princ. Author), “Conclusions for structural analysis and formulation of standard design recommendations”, *Materials and Structures* (RILEM, Paris) 20, 395–398; reprinted in *ACI Materials Journal* 84 (1987), 578–581, and in *Mathematical Modeling of Creep and Shrinkage of Concrete*, Z.P. Bažant, ed., J. Wiley, Chichester & New York (1988) 385–392.

S21. RILEM Committee TC-69 (1988). (Z.P. Bažant, Chairman and princ. author). “Mathematical Models for Structural Creep Analysis”, in *Mathematical Modeling of Creep and Shrinkage of Concrete*, ed. by Z.P. Bažant, J. Wiley, pp.99–215 (in prelim. form: “State-of-art report on creep and shrinkage of concrete: mathematical modeling,” Preprints, *Fourth RILEM International Conference on Creep and Shrinkage of Concrete*, 1986, ed. by Z.P. Bažant, 41–80).

S22. Bažant, Z.P. (1989). “Advances in material modeling of concrete”, Transactions, *Tenth International Conference on Structural Mechanics in Reactor Technology* (SMiRT10), Anaheim, CA, August 1989, Vol. A, Principal Division Lectures, ed. by A. H. Hadjian, 301–330.

S23. Bažant, Z.P. (1990). “Recent advances in failure localization and nonlocal models,” in *Micromechanics of Failure of Quasi-Brittle Materials* (Preprints, Conf. held at University of New Mexico, Albuquerque), ed. by S. P. Shah, S. E. Swartz and M. L. Wang, Elsevier, London, 1990, pp. 12–32.

S24. Bažant, Z.P., and Mazars, J. (1990). “France-U.S. Workshop on Strain Localization and Size Effect Due to Cracking and Damage,” *ASCE J. of Engrg. Mech.* 116 (6), 1412–1424.

S25. ACI Committee 446, Fracture Mechanics (Z.P. Bažant—Chairman and Princ. Author) (1992). “Fracture mechanics of concrete: Concepts, models and determination of material properties.” Special publication, ACI 446, 1R-91, American Concrete Institute, Detroit,

1991 (146 pp.). Reprinted in *Fracture Mechanics of Concrete Structures*, ed. by Z.P. Bažant, Elsevier, London, 1–140 (see P90).

S26. Bažant, Z.P. (1993). “Current status and advances in the theory of creep and interaction with fracture.” Proc., *5th International RILEM Symposium on Creep and Shrinkage of Concrete (ConCreep 5)*, held at U.P.C., Barcelona, September, Z.P. Bažant and I. Carol, eds., E & FN Spon, London, 291–307.

S27. Bažant, Z.P., Xi, Y.-P., Baweja, S., and Carol, I. (1993). “Preliminary guidelines and recommendations for characterizing creep and shrinkage in structural design codes.” Proc., *5th International RILEM Symposium on Creep and Shrinkage of Concrete (ConCreep 5)*, held at U.P.C., Barcelona, September, ed. by Z.P. Bažant and I. Carol, E & FN Spon, London, 805–829.

S28. Bažant, Z.P. (1994). “Creep and thermal effects in concrete structures: A conspectus of some new developments.” Proc., *Computational Modelling of Concrete Structures (EURO-C)*, held at Innsbruck, Austria, March, Pineridge Press, 461–480.

S29. Bažant, Z.P., and Jirásek, M. (1994). “Damage nonlocality due to microcrack interactions: statistical determination of crack influence function.” *Fracture and Damage in Quasibrittle Structures: Experiment, Theory and Computer Modeling* (Proc., Europe-U.S. Workshop held at Czech Techn. Univ., Prague, Sept. 21–23, 1994, sponsored by U.S.-NSF and European Union), ed. by Bažant, Z.P., Bittnar, Z., Jirásek, M., and Mazars, J., E. & FN Spon, London-New York, 3–17.

S30. Bažant, Z.P. (1995). “Scaling theories for quasibrittle fracture: Recent advances and new directions.” in *Fracture Mechanics of Concrete Structures* (Proc., 2nd Int. Conf. on Fracture Mech. of Concrete and Concrete Structures (FraMCoS-2), held at ETH, Zürich), ed. by F.H. Wittmann, Aedificatio Publishers, Freiburg, Germany, 515–534.

S31. Bažant, Z.P. (1997). “Recent advances in brittle-plastic compression failure: damage localization, scaling and finite strain.” (Plenary keynote lecture) *Computational Plasticity: Fundamentals and Applications*. Proc., 5th Int. Conf., COMPLAS-5, held in Barcelona), D.R.J. Owen, E. Oñate and E. Hinton, eds., Int. Center for Num. Meth. in Engrg., Barcelona, 3–19.

S32. Bažant, Z.P. (1997). “Modeling of concrete behavior—state of the art.” *Trans., 14th Int. Conf. on Struct. Mech. in Reactor Technology (SMiRT-14)* (held in Lyon), ed. M. Livolant, Plenary Lectures Volume, 49–74.

S33. Bažant, Z.P. (1997). “Prediction of concrete creep and shrinkage: Past, Present and Future.” Proc., *Joint WANO/OECD-NEA Workshop on Prestress Losses in NPP (Nuclear Power Plant) Containments*, org. by EDF/IPSN (Electricité de France), held at Civaux NPP (Poitiers), France, publ. by OECD Nuclear Energy Agency, pp. 33–48 (republished in revised form in *Nuclear Engrg. & Design*, 2000—see 396a).

S34. Bažant, Z.P., and Chen, E.-P. (1997). “Scaling of structural failure.” *Applied Mechanics Reviews ASME* 50

(10), 593–627; transl. in *Advances in Mechanics* (China) 29 (3), 383–433.

S35. Bažant, Z.P. (1998). “Size effect in tensile and compression fracture of concrete structures: computational modeling and design.” *Fracture Mechanics of Concrete Structures* (Proc., 3rd Int. Conf., FraMCoS-3, held in Gifu, Japan), H. Mihashi and K. Rokugo, eds., Aedificatio Publishers, Freiburg, Germany, 1905–1922.

S36. Bažant, Z.P. (1999). “Structural stability.” *International Journal of Solids and Structures* 37 (200), 55–67; special issue of invited review articles on *Solid Mechanics* edited by G.J. Dvorak for U.S. Nat. Comm. on Theor. and Appl. Mech., publ. as a book by Elsevier Science, Ltd.

S37. Bažant, Z.P. (1999). “Size effect.” *International Journal of Solids and Structures* 37 (200), 69–80; special issue of invited review articles on *Solid Mechanics* edited by G.J. Dvorak for U.S. Nat. Comm. on Theor. and Appl. Mech., publ. as a book by Elsevier Science, Ltd.

S38. Bažant, Z.P. (1999). “Size effect on structural strength: a review.” *Archives of Applied Mechanics* (Ingenieur-Archiv, Springer Verlag) 69, 703–725 (75th Anniversary Issue). Reprinted with updates in *Handbook of Materials Behavior Models*, J. Lemaitre, ed., Academic Press, San Diego 2001, Vol. 1, 30–68.

S39. Bažant, Z.P., and Baweja, S. (2000). “Creep and shrinkage prediction model for analysis and design of concrete structures: Model B3.” *Adam Neville Symposium: Creep and Shrinkage—Structural Design Effects*, ACI SP-194, A. Al-Manaseer, ed., Am. Concrete Institute, Farmington Hills, Michigan, 1–83.

S40. Brocca, M. and Bažant, Z.P. (2000). “Microplane constitutive model and metal plasticity.” *Applied Mechanics Reviews*, ASME 53 (10), 265–281.

S41. Bažant, Z.P. (2000). “Stability of elastic, anelastic and disintegrating structures: a conspectus of main results.” *Applied Mathematics and Mechanics (Zeitschrift für Angewandte Mathematik und Mechanik—ZAMM)* 80 (11/12), 709–732 (Ludwig Prandtl’s 125th anniversary issue).

S42. Bažant, Z.P., and Ferretti, D. (2001). “Asymptotic temporal and spatial scaling of coupled creep, aging, diffusion and fracture processes.” *Creep, Shrinkage and Durability Mechanics of Concrete and Other Quasi-Brittle Materials*. (Proc., 6th Intern. Conf., CONCREEP-6, held at MIT, Cambridge), F.-J. Ulm, Z.P. Bažant and F.H. Wittmann, eds., Elsevier, Amsterdam 2001, 121–145.

S43. Bažant, Z.P. (2001). “Creep of concrete.” *Encyclopedia of Materials: Science and Technology*, K.H.J. Buschow et al., eds. Elsevier, Amsterdam, Vol. 2C, 1797–1800.

S44. Bažant, Z.P. (2001). “Probabilistic modeling of quasibrittle fracture and size effect” (principal plenary lecture), Proc., 8th Int. Conf. on Structural Safety and Reliability (ICOSSAR), held at Newport Beach, Cal., 2001), R.B. Corotis, G.I. Schueller and M. Shinozuka, eds., Swets & Zeitinger (Balkema), 1–23.

S45. Bažant, Z.P. (2002). “Reminiscences on four

decades of struggle and progress in softening damage and size effect” (in both English and Japanese translation). *Concrete Journal (Tokyo)* 40 (2), 16–28 (invited Anniversary Paper, Japan Concrete Institute) •S45b: Expanded version republished in *Mechanics (Am. Academy of Mech.)* 32 (5-6), 2003, 1-10 •S45c: Czech translation: Vzpomínky na čtyři desetiletí úsilí o pokrok v modelování poškození a vlivu velikosti, *Pražská technika* 2003 (2), 10–17 •S45d: Abbreviated Czech translation, *Beton* (Prague) 2 (5), 2002, 55–57.

S46. Bažant, Z.P., Y.D.S. Rajapakse, D.H. Allen, R. Ballarini, H.D. Espinosa, H. Gao, R. Gettu, M. Jirásek, G. Pijaudier-Cabot, J. Planas and F.-J. Ulm (2002). “Report on ONR Workshop on Fracture Scaling.” *Int. J. of Fracture* 113, 345–366.

S47. Bažant, Z.P. (2002). “Size effect theory and its application to fracture of fiber composites and sandwich plates.” *Continuum Damage Mechanics of Materials and Structures*, O. Allix and F. Hild, eds., Elsevier, Amsterdam, pp. 353–381.

S48. Bažant, Z.P., and Jirásek, M. (2002). “Nonlocal integral formulations of plasticity and damage: Survey of progress”. *ASCE J. of Engrg. Mechanics* 128 (11), 1119–1149 (invited ASCE 150th anniversary article).

S49. Bažant, Z.P. (2003). “Stability of elastic, anelastic and disintegrating structures, and finite strain effects: An overview.” Chapter 2.02 in *Comprehensive Structural Integrity*, Vol. 2. Fundamental theories and mechanisms of failure, I. Milne, R.O. Ritchie and B. Karimhaloo, eds., Elsevier (Pergamon), Amsterdam, 47–80.

S50. RILEM TC QFS (chaired by Z.P. Bažant)(2004). “Quasibrittle fracture scaling and size effect—Final report.” *Materials and Structures* (Paris) 37 (No. 272), 547–586.

S51. Bažant, Z.P. (2010). “Can multiscale-multiphysics methods predict softening damage and structural failure?” *Int. J. for Multiscale Computational Engrg.* 8 (1) 61–67; special issue ed. by M. Šejnoha honoring J. Šejnoha at 70 (authorized republication from newsletter *Mechanics* of Am. Academy of Mechanics, Vol. 36, 2007, no. 5–6, May-June, pp. 5–12).

S52. Bažant, Z.P., Hubler, M.H., and Yu, Qiang (2014). “Damage in prestressed concrete structures due to creep and shrinkage of concrete.” in *Handbook of Damage Mechanics*, G. Z. Voyiadjis (ed.), Springer Science, New York, pp. 515–564.

### 3 Contributed Wikipedia Articles

W1. “Size effect on structural strength.” Contributed to *Wikipedia* in 2012 by Z.P. Bažant (<http://en.wikipedia.org/wiki/>).

W2. “Creep and shrinkage of concrete and their effects in structures.” Contributed to *Wikipedia* in 2012 by Z.P. Bažant (<http://en.wikipedia.org/wiki/>).

W3. “Energy-Consistent Objective Stress Rates.” Contributed to *Wikipedia* in 2013 by Z.P. Bažant (with J. Vorel) (<http://en.wikipedia.org/wiki/>).

W4. “Microplane model for constitutive laws of materials.” Contributed to *Wikipedia* in 2015 by Z.P. Bazant (with J. Vorel) {[https://en.wikipedia.org/wiki/Microplane\\_model\\_for\\_constitutive\\_laws\\_of\\_materials](https://en.wikipedia.org/wiki/Microplane_model_for_constitutive_laws_of_materials)}, segmentally” (in Czech), *Inženýrské Stavby*, 11, 11–13.

## 4 Research Articles in Refereed Journals and Book Chapters

### 1958

1. Bažant, Z.P. (1958). “Analysis of skew plates with free boundaries by relaxation method” (in Czech), *Inženýrské Stavby*, 6, 437–444.

### 1959

2. Bažant, Z.P. (1959/60). “Anwendung der Relaxationsmethode mit veränderlichem Belastungsglied für die Berechnung der schiefen Platten” (Use of relaxation method with variable load term for skew plate analysis), *Wissenschaftliche Zeitschrift der Technischen Hochschule Dresden*, 9, 391–400.

### 1960

3. Bažant, Z.P. (1960). “Relaxation method with variable load term and its use in plate and torsion problems” (in Czech with English summary), *Aplikace Matematiky ČSAV*, 5, 458–475.

4. Bažant, Z.P. (1960). “Mechanics and new designs of safety ski bindings” (in Czech), *Teorie a Praxe Tělesné Výchovy a Sportu (Theory and Practice of Physical Education and Sports)* 8, 562–570.

### 1961

5. Bažant, Z.P. (1961). “Analysis of frames with beams subjected to skew bending” (in Czech), *Inženýrské Stavby*, 9, 225–228.

6. Bažant, Z.P. (1961). “Analysis of influence lines of continuous frames with hinges at midspans” (in Czech), *Inženýrské Stavby*, 9, 344–346.

7. Bažant, Z.P. (1961). “Effect of creep and shrinkage in statically indeterminate structures with concrete of nonuniform age.” (in Czech), *Inženýrské Stavby*, 9, 462–532.

8. Bažant, Z.P. (1961). “Beitrag zur Differenzenlösung schiefer Platten und eine neue Art der Relaxationsmethode.” (On finite difference analysis of skew plates and a new type of relaxation method), *Bauplanung-Bautechnik* (Berlin), 16, 24–27, 82–86.

### 1962

9. Bažant, Z.P. (1962). “Evaluation of friction losses of prestressing force in curved tendons according to their extension at tensioning” (in Czech), *Inženýrské Stavby*, 10, 290–293.

10. Bažant, Z.P. (1962). “Theory of creep and shrinkage of concrete in nonhomogeneous structures and cross sections” (in Czech with English summary), *Stavebnický Časopis* (SAV, Bratislava), 10, 552–576.

### 1963

11. Novotný, V., and Bažant, Z.P. (1963). “An improved prestressing system for bridges assembled or cast

### 1964

12. Bažant, Z.P. (1964). “Influence lines of horizontally curved bridges” (in Czech with English summary), *Stavebnický Časopis* (SAV, Bratislava), 12, 18–39.

13. Bažant, Z.P. (1964). “Proposal of an efficient system of space arrangement of rubber bearings of bridge girders” (in Czech), *Inženýrské Stavby*, 12, 114–115.

14. Bažant, Z.P. (1964). “Approximate methods of analysis of creep and shrinkage of complex nonhomogeneous structures and use of computers” (in Czech with English summary), *Stavebnický Časopis* (SAV, Bratislava), 12, 414–431.

15. Bažant, Z.P. (1964). “Time-interaction of statically indeterminate structures and subsoil” (in Czech with English summary), *Stavebnický Časopis* (SAV, Bratislava), 12, 542–558.

### 1965

16. Bažant, Z.P. (1965). “Mathematische Ermittlung der rheologischen Eigenschaften von glasfaserverstärkten Platten für die Berechnung von Konstruktionen” (Mathematical formulation of rheological properties of glass fiber reinforced plastics) *Plaste und Kautschuk* (Leipzig), 12, 592–599.

17. Bažant, Z.P. (1965). “Nonuniform torsion of thin-walled bars of variable cross section” *Publications, International Association for Bridge and Structural Engineering* (IABSE, Zürich), 25, 245–267.

### 1966

18. Bažant, Z.P. (1966). “Phenomenological theories for creep of concrete based on rheological models.” *Acta Technica ČSAV* (Prague), 11, 82–109.

19. Bažant, Z.P. (1966). “Conjugate analogy for space structures.” *Journal of the Structural Division*. Proc. Am. Soc. Civil Engrs. (ASCE) 92, ST3, 137–159.

### 1967

20. Bažant, Z.P. (1967). “Electric analogues for creep of concrete.” (in Czech), *Stavební Výzkum VÚPS* Prague, No. 1, 10–14.

21. Věk, J.B., Bažant, Z.P., and Stibor, J. (1967). “Prestressed concrete bridge in a horizontal curve” (in Czech), *Inženýrské Stavby*, 15, 113–119.

22. Bažant, Z.P. (1967). “Analogy of forces and deformations in structures consisting of bars” (in Czech), *Inženýrské Stavby*, 15, 128–136.

23. Bažant, Z.P., and Skupin, L. (1967). “Méthode d’essai de vieillissement des plastiques renforcées sous contrainte” (Testing method for aging of reinforced plastics under stress) *Plastiques Renforcées-Verre Textile* (Paris), 5, 27–30.

24. Bažant, Z.P. (1967). “Thin-walled bars of a nonuniform rigid cross section” (in Czech) *Inženýrské Stavby*, 15, 222–228.

25. Bažant, Z.P. (1967). “L’instabilité d’un milieu continu et la résistance en compression” (Continuum instability and compression strength), *Bulletin RILEM* (Paris), No. 35, 99–112.

26. Bažant, Z.P. (1967). “Measurement of long-time mechanical constants of reinforced and unreinforced plastics” (in Czech), *Plastické Hmoty a Kaučuk*, 4, 199–203.

27. Bažant, Z.P. (1967). “Linear creep problems solved by a succession of generalized thermoelasticity problems.” *Acta Technica ČSAV*, 12, 581–594.

28. Bažant, Z.P. (1967). “Nonuniform settlement of precast panel buildings: Force method” (in Czech), *Pozemní Stavby*, 8, 392–396 and 472–476.

29. Bažant, Z.P. (1967). “Internal stresses in reinforced plastics caused by shrinkage or resin and thermal deformations.” *Acta Polytechnica ČVUT* (Prague), 1, No. 1, 5–17.

30. Bažant, Z.P. (1967). “Thin-walled bars of variable deformable closed or open cross section concrete bridge girders” (in Czech with English summary), *Stavebnický Časopis* (SAV, Bratislava), 15, 541–555.

31. Bažant, Z.P. (1967). “On instability of three-dimensional bodies.” *Acta Polytechnica ČVUT* (Prague), 1, No. 3, 5–17.

#### 1968

32. Bažant, Z.P. (1968), “Nonuniform settlement of precast panel buildings: Stiffness method and conversion to a semi-continuum” (in Czech), *Pozemní Stavby*, 8, 403–408.

33. Bažant, Z.P. (1968). “Long-time stability and buckling strength of concrete columns” (in Czech), *Inženýrské Stavby*, 16, 171–179.

34. Bažant, Z.P. (1968). “Effect of folding of reinforcing fibers on the elastic moduli and strength of composite materials” (in Russian), *Mekhanika Polimerov* (Riga), 4, 314–321.

35. Bažant, Z.P. (1968). “Conditions of deformation instability of a continuum and their application to thick slabs and a half space” (in Czech with English summary), *Stavebnický Časopis* (SAV, Bratislava), 16, 48–64.

36. Bažant, Z.P. (1968). “Pièces longues a voiles épais et calcul des poutres a section déformable” (Box girders of deformable cross section), *Annales des Ponts et Chaussées* (Paris) (No. III), 155–169.

37. Bažant, Z.P. (1968). “On causes of excessive long-time deflections of prestressed concrete bridges. Creep under repeated live load” (in Czech), *Inženýrské Stavby*, 16, 317–320.

38. Bažant, Z.P., and Skupin, L. (1968). “Material properties for the design of polyvinylchloride structural members” (in Czech), *Plastické Hmoty a Kaučuk*, 5, 161–166.

39. Bažant, Z.P. (1968). “Langzeitige Durchbiegungen von Spannbetonbrücken infolge des Schwingkriechens unter Verkehrslasten” (Long-time deflections of prestressed concrete bridges due to cyclic creep under traffic loads), *Beton und Stahlbetonbau*, 63, 282–285.

40. Bažant, Z.P. (1968). “Creep stability and buckling strength of concrete columns.” *Magazine of Concrete Research*, 20, 85–94.

#### 1970

41. Bažant, Z.P. (1970). “Constitutive equation for concrete creep and shrinkage based on thermodynamics of multi-phase systems.” *Materials and Structures* (RILEM, Paris), 3, 3–36 (reprinted in *Fifty Years of Evolution of Science and Technology of Building Materials and Structures*, Ed. by F.H. Wittmann, RILEM, Aedificatio Publishers, Freiburg, Germany 1997, 377–410).

42. Bažant, Z.P. (1970). “Numerical analysis of creep of an indeterminate composite beam.” *Journal of Applied Mechanics*, Transactions ASME, Ser. E, 37, 1161–1164.

43. Bažant, Z.P. (1970). “Delayed thermal dilatations of cement paste and concrete due to mass transport.” *Nuclear Engineering & Design*, 24, 308–318.

#### 1971

44. Bažant, Z.P. (1971). “Numerical solution of nonlinear creep problems with application to plates.” *Intern. J. of Solids & Structures*, 7, 83–97.

45. Bažant, Z.P. (1971). “Numerical analysis of creep of reinforced plates.” *Acta Technica Hungaricae* (Budapest), Vol. 70 (No. 3-4), 415–428.

46. Bažant, Z.P., and Najjar, L. J. (1971). “Drying of concrete as a nonlinear diffusion problem.” *Cement and Concrete Research*, 1, 1971, 461–473.

47. Bažant, Z.P. (1971). “A correlation study of incremental deformations and stability of continuous bodies.” *Journal of Applied Mechanics*, Trans. ASME, 38, 919–928.

#### 1972

48. Bažant, Z.P. (1972). “Matrix differential equation and higher order numerical methods for problems of nonlinear creep, elasto-plasticity and visco-elasticity.” *International Journal for Numerical Methods in Engineering*, 4, 11–15.

49. Bažant, Z.P. (1972). “Thermodynamics of hindered adsorption with application to cement paste and concrete.” *Cement and Concrete Research*, 2, 1–16.

50. Bažant, Z.P., and Najjar, L. J. (1972). “Nonlinear water diffusion in nonsaturated concrete.” *Materials and Structures* (RILEM, Paris), 5, 3–20 (reprinted in *Fifty Years of Evolution of Science and Technology of Building Materials and Structures*, Ed. by F.H. Wittmann, RILEM, Aedificatio Publishers, Freiburg, Germany 1997, 435–456).

51. Bažant, Z.P., and Christensen, M. (1972). “Analogy between micropolar continuum and grid frameworks under initial stress.” *International Journal of Solids and Structures*, 8, 327–346.

52. Bažant, Z.P. (1972). “Prediction of concrete creep effects using age-adjusted effective modulus method.” *American Concrete Institute Journal*, 69, 212–217.

53. Bažant, Z.P. (1972). “Static structure-soil interaction.” *Revue Roumaine Sci. Techn.-Mécanique Appliquée*, 17, 1341–1361.

54. Bažant, Z.P. (1972). “Thermodynamics of interacting continua with surfaces and creep analysis of concrete structures.” *Nuclear Engineering and Design*, 20, 477–505.

55. Bažant, Z.P. (1972). “Numerical determination of long-range stress history from strain history in concrete.”

*Materials and Structures* (RILEM), 5, 135–141.

55a. Bažant, Z.P., Z.P., (1972). “Numerical determination of stress response to a given strain history in concrete.” *CEB (European Committee on Concrete) Bulletin* No. 80.

56. Bažant, Z.P., and Christensen, M. (1972). “Long-wave extensional buckling of large regular frames.” *J. Struct. Div., Proc. Am. Soc. Civil Engrs.* 98, ST10, 2269–2289.

### 1973

57. Bažant, Z.P., and Wu, S. T. (1973). “Dirichlet series creep function for aging concrete.” *Proc. ASCE, J. Engrg. Mech. Div.*, 99, EM2, 367–387.

58. Bažant, Z.P., and Moschovidis, Z. (1973). “Surface diffusion theory for the drying creep effect in Portland cement paste and concrete” *J. Am. Ceramic Soc.*, 56, 235–241.

59. Bažant, Z.P., Hemann, J. H., Koller, H., and Najjar, L. J. (1973). “A thin-walled cement paste cylinder for creep tests at variable temperature and humidity.” *Materials and Structures*, 6, 277–281.

60. Bažant, Z.P., and Najjar, L.J. (1973). “Comparison of approximate linear methods for concrete creep.” *J. Struct. Div., Proc. Am. Soc. Civil Engrs.*, 99, ST9, 1851–1874.

61. Bažant, Z.P., and Christensen, M. (1973). “Continuum solutions for long-wave extensional buckling of regular frames.” *Int. of J. Engrg. Science*, 11, 1255–1263.

62. Bažant, Z.P., and ElNimeiri, M. (1973). “Large deflection spatial buckling of thin-walled beams and frames.” *J. Engrg. Mech. Div., Am. Soc. Civil Engrs.*, 99, EM6, 1259–1281.

### 1974

63. Bažant, Z.P., and Wu, S. T. (1974). “Rate-type creep law of aging concrete based on Maxwell chain.” *Materials and Structures* (RILEM), 7 (No. 37), 45–60.

64. Bažant, Z.P. (1974). “Three-dimensional harmonic functions near termination or intersection of singularity lines: A general numerical method.” *Int. J. of Engrg. Science*, 12, 221–243.

65. Bažant, Z.P., and Wu, S. T. (1974). “Thermo-viscoelasticity of aging concrete.” *J. Engrg. Mech. Div., Am. Soc. Civil Engrs.*, 100, EM3, 575–597 (also as ASCE Meeting Preprint No. 2110, Oct. 1973).

66. Bažant, Z.P., and Asghari, A. (1974). “Computation of age-dependent relaxation spectra.” *Cement and Concrete Research*, 4, 567–579.

67. Bažant, Z.P., and Keer, L. M. (1974). “Singularity of elastic stresses and of harmonic functions at conical notches or inclusions.” *Int. J. of Solids and Structures*, 10, 957–964.

68. Bažant, Z.P., and Asghari, A. (1974). “Computation of Kelvin-chain retardation spectra of aging concrete.” *Cement and Concrete Research*, 4, 797–806.

69. Bažant, Z.P., and ElNimeiri, M. (1974). “Stiffness method for curved box girders at initial stress.” *J. Struct.*

*Div., Am. Soc. Civil Engrs.*, 100, ST10, 2071–2090.

70. Bažant, Z.P., and Wu, S. T. (1974). “Creep and shrinkage law of concrete at variable humidity.” *J. Engrg. Mech. Div., Am. Soc. Civil Engrs.*, 100, 1183–1209.

### 1975

71. Bažant, Z.P., Ozaydin, I. K., and Krizek, R. J. (1975). “Micromechanics model for creep of anisotropic clay.” *Jour. Engrg. Mech. Div., Am. Soc. Civil Engrs.*, 101, 57–78.

72. Bažant, Z.P., and Osman, E. (1975). “On the choice of creep function for standard recommendations on practical analysis of structures.” *Cement and Concrete Research*, 5, 129–137; disc. & reply 5, 631–641; 6 (1976) 149–157; 7 (1977) 119–130; 8 (1978) 129–130.

73. Achenbach, J. D., and Bažant, Z.P. (1975) “Elastodynamic near-tip stress and displacement fields for rapidly propagating cracks in orthotropic materials.” *Jour. Appl. Mech., Trans. ASME*, 42, 183–189.

74. Bažant, Z.P., and ElNimeiri, M. (1975). “Finite element for buckling of curved beams and shells with shear.” *Jour. Struct. Div., Am. Soc. Civil Engrs.*, 101, 1997–2004.

75. Bažant, Z.P., Carreira, D., and Walser, A. (1975). “Creep and shrinkage in reactor containment shells.” *Jour. Struct. Div., Am. Soc. Civil Engrs.*, 101, 2117–2131.

76. Bažant, Z.P., and Krizek, R. J. (1975). “Saturated sand as an inelastic two-phase medium.” *Jour. Engrg. Mech. Div., ASCE*, 101, 317–332.

### 1976

77. Bažant, Z.P., and Osman, E. (1976). “Double power law for basic creep of concrete.” *Materials and Structures* (RILEM, Paris), 9, 3–11.

78. Bažant, Z.P. (1976), “Instability, ductility, and size effect in strain-softening concrete.” *J. Engrg. Mech. Div., Am. Soc. Civil Engrs.*, 102, EM2, 331–344; disc. 103, 357–358, 775–777, 104, 501–502.

79. Bažant, Z.P., and Krizek, R. J. (1976). “Endochronic constitutive law for liquefaction of sand.” *J. Engrg. Mech. Div., Am. Soc. Civil Engrs.*, 102, EM2, 225–238.

80. Bažant, Z.P., and Thonguthai, W. (1976). “Optimization check of certain practical formulations for concrete creep.” *Materials and Structures* (RILEM, Paris), 9 (No. 50) 91–98. Disc. & replies: 10 (1977, No. 55) 55–58.

81. Bažant, Z.P., Glazik, J. L., and Achenbach, J. D. (1976). “Finite element analysis of wave diffraction by a crack.” *J. Engrg. Mech. Div., Am. Soc. Civil Engrs.*, 102, EM3, 479–496; disc. 103, 226–228, 497–499, 1181–1185.

82. Bažant, Z.P., and Bhat, P. (1976). “Endochronic theory of inelasticity and failure of concrete.” *Jour. Engrg. Mech. Div., Am. Soc. Civil Engrs.*, 102, 701–721.

83. Bažant, Z.P. (1976). “Safety advantages of prestressed concrete reactor vessels.” *Nuclear Technology* (Am. Nuclear Society), 30, 256–260.

84. Bažant, Z.P., Asghari, A. A., and Schmidt, J. (1976). “Experimental study of creep of hardened cement

paste at variable water content." *Materials and Structures* (RILEM, Paris), 9, 279–190.

85. Achenbach, J. D., Bažant, Z.P., and Khetan, R. P. (1976). "Elastodynamic near-tip fields for a rapidly propagating interface crack." *Int. J. of Engrg. Science*, 14, 797–809.

86. Achenbach, J. D., Bažant, Z.P., and Khetan, R. P. (1976). "Elastodynamic near-tip fields for a crack propagating along the interface of two orthotropic solids." *Int. J. of Engrg. Science*, 14, 811–818.

87. Bažant, Z.P., Osman, E., and Thonguthai, W. (1976). "Practical formulation of shrinkage and creep in concrete." *Materials and Structures* (RILEM, Paris), 9, 395–406.

### 1977

88. Bažant, Z.P., and Bhat, P. D. (1977). "Prediction of hysteresis of reinforced concrete members," *J. of the Struct. Div.*, Am. Soc. Civil Engrs., 103, 153–167.

89. Bažant, Z.P., and Asghari, A. A. (1977). "Constitutive law for nonlinear creep of concrete." *J. of the Engrg. Mech. Div.*, Am. Soc. Civil Engrs., 103, 113–124.

90. Cuellar, V., Bažant, Z.P., Krizek, R. J., and Silver, M. L. (1977). "Densification and hysteresis of sand under cyclic shear." *J. of the Geotechn. Engrg. Div.*, ASCE, 103, 399–416.

91. Bažant, Z.P., and Ohtsubo, H. (1977). "Stability conditions for propagation of a system of cracks in a brittle solid." *Mechanics Research Communications*, 4 (5), 353–366.

92. Çinlar, E., Bažant, Z.P., and Osman, E. (1977). "Stochastic process for extrapolating concrete creep." *J. of the Engrg. Mech. Div.*, ASCE, 103, 1069–1088; Disc. 1979, 485–489.

93. Bažant, Z.P. (1977). "Viscoelasticity of solidifying porous material—concrete." *J. of the Engrg. Mech. Div.*, ASCE, 103, 1049–10067; Disc. 1979, 725–728.

### 1978

94. Bažant, Z.P., Glazik, J. L., and Achenbach, J. D. (1978). "Elastodynamic fields near running cracks by finite elements." *Computers and Structures* 8, 193–198.

95. Bažant, Z.P., and Panula, L. (1978). "A note on amelioration of the creep function for improved Dischinger method." *Cement and Concrete Research*, 8 (3), 381–386.

96. Bažant, Z.P., and Shieh, C. L. (1978). "Endochronic model for nonlinear triaxial behavior of concrete." *Nuclear Engrg. and Design*, 26, 305–315.

97. Bažant, Z.P., and Fistedis, S. H. (1978). "Dried hot concrete vessel for nuclear reactors: Proposal of a new design concept." *Nuclear Engrg. and Design*, 26, 317–324.

98. Bažant, Z.P. (1978). "Spurious reflection of elastic waves in non-uniform finite element grids." *Computer Methods in Applied Mechanics & Engrg.*, 13, 91–100 (reprinted in *Numerical Modeling of Seismic Wave Propagation*, ed. by K. R. Kelly and K. J. Marfurt, Society of Exploration Geophysics, Tulsa, OK, 1990, 381–390).

99. Bažant, Z.P. (1978). "Endochronic inelasticity and incremental plasticity." *Int. J. of Solids & Structures*, 14, 691–714.

100. Bažant, Z.P., and Thonguthai, W. (1978). "Pore pressure and drying of concrete at high temperature." *Proc. ASCE, J. of the Engrg. Mech. Div.*, 104, 1058–1080.

101. Bažant, Z.P., and Panula, L. (1978). "Statistical stability effects in concrete failure." *J. of the Engrg. Mech. Div.*, Proc. ASCE, 104, 1195–1212.

102. Bažant, Z.P., and Ohtsubo, R. (1978) "Geothermal heat extraction by water circulation through a large crack in dry hot rock mass." *Int. J. for Numerical and Analytical Method in Geomechanics*, 2, 317–327.

103. Bažant, Z.P., and Kim, S.-S. (1978). "Can the creep curves for different loading ages diverge?" *Cement and Concrete Research*, 8, 601–612.

104. Marchertas, A. H., Fistedis, S. H., Bažant, Z.P., and Belytschko, T. (1978). "Analysis and application of prestressed concrete reactor vessels for LMFBR containment." *Nuclear Engrg. and Design*, 49, 155–173.

105–110. Bažant, Z.P., and Panula, L. (1978–79). "Practical prediction of time-dependent deformations of concrete." *Materials and Structures* (RILEM, Paris):

- Part I, "Shrinkage" Vol.11 (1978), 307–316.
- Part II, "Basic creep" Vol. 11 (1978), 317–328.
- Part III, "Drying creep" Vol. 11 (1978), 415–424.
- Part IV, "Temperature effect on basic creep" Vol. 11 (1978), 425–434.

### 1979

•Part V, "Temperature effect on drying creep" Vol.12 (1979), 169–174.

•Part VI, "Cyclic creep, nonlinearity and statistical scatter" Vol. 12 (1979), 175–183.

111. Bažant, Z.P., and Tsubaki, T. (1979). "Concrete reinforcing net: optimum slip-free limit design." *J. of the Structural Div.*, Proc. ASCE, 105, 327–346. Disc. 1980, 1375–1383.

112. Bažant, Z.P., and Panula, L. (1979). "A note on limitations of a certain creep function used in practice." *Materials and Structures* (RILEM, Paris), 12, 29–31.

113. Bažant Z.P., and Cedolin, L. (1979). "Blunt crack band propagation in finite element analysis." *J. of the Engrg. Mech. Div.*, Proc. ASCE, 105, 297–315.

114. Ansal, A. M., Bažant, Z.P., and Krizek, R. J. (1979). "Viscoplasticity of normally consolidated clays." *J. of the Geotechnical Div.*, Proc., ASCE, 105, 519–537.

115. Bažant, Z.P., and Estenssoro, L. F. (1979). "Surface singularity and crack propagation." *Int. J. of Solids and Structures*, 15, 405–426. Addendum Vol. 16, 479–481.

116. Bažant, Z.P., and Kim, S. S. (1979). "Plastic-fracturing theory for concrete." *J. of the Engrg. Mech. Div.*, Proc. ASCE, 105 (EM3), 407–428.

117. Bažant, Z.P., and Kim, S. S. (1979). "Nonlinear creep of concrete—adaptation and flow." *J. of the Engrg. Mech. Div.*, Proc. ASCE, 105, 429–446.

118. Bažant, Z.P. (1979). "Physical model for steel corrosion in concrete sea structures—theory." *J. of the*



*Engrg. Mech. Div.*, Proc. ASCE, 105, 1137–1153.

119. Bažant, Z.P. (1979). “Physical model for steel corrosion in concrete sea structures—application.” *J. of the Engrg. Mech. Div.*, Proc. ASCE, 105, 1154–1166. Disc. 1980, 1194–1195.

120. Bažant, Z.P., and Thonguthai, W. (1979). “Pore pressure in heated concrete walls—theoretical prediction.” *Mag. of Concrete Research*, 31, 67–76.

121. Bažant, Z.P., Ansal, A. M., and Krizek, R. J. (1979). “Viscoplasticity of transversely isotropic clays.” *J. of the Engrg. Mech. Div.*, Proc. ASCE, 103, 549–565.

122. Bažant, Z.P., Kim, S. S., and Meiri, S. (1979). “Triaxial moisture-controlled creep tests of hardened cement paste at high temperature.” *Materials and Structures* (RILEM, Paris), 12, 447–456.

123. Bažant, Z.P., and Kim, S. S. (1979). “Approximate relaxation function for concrete.” *J. of the Str. Div.*, Proc. ASCE, 105, 2695–2705.

124. Bažant, Z.P., and Wahab, A. B. (1979). “Instability and spacing of cooling or shrinkage cracks.” *J. of the Engrg. Mech. Div.*, Proc. ASCE, 105, 873–889.

125. Bažant, Z.P., Ohtsubo, R., and Aoh, K. (1979). “Stability and post-critical growth of a system of cooling and shrinkage cracks.” *Int. J. of Fracture*, 15, 443–456.

126. Bažant, Z.P. (1979). “Thermodynamics of solidifying or melting viscoelastic material.” *J. of the Engrg. Mech. Div.*, Proc. ASCE, 105, 933–952.

#### 1980

127. Bažant, Z.P., and Wahab, A. B. (1980). “Stability of parallel cracks in solids reinforced by bars.” *Int. J. of Solids & Struct.*, 16, 97–106.

128. Bažant, Z.P., and Gambarova, P. (1980). “Rough cracks in reinforced concrete.” *J. of Struct. Div.*, Proc. ASCE, 106, 619–642; Disc. 2579–2581 (also ASCE Meeting Preprint No. 3579, Boston, Apr. 1979).

129. Blázquez, R., Bažant, Z.P., and Krizek, R. J. (1980). “Site factors controlling liquefaction.” *J. of the Geotechnical Div. ASCE* 106, 783–801.

130. Bažant, Z.P., and Panula, L. (1980). “Creep and shrinkage characterization for prestressed concrete structures.” *J. of the Prestressed Concrete Institute*, 25, 86–122.

131. Bažant, Z.P., and Burrow, M. C. (1980). “Confinement effect in flexural ductility of concrete: Three dimensional analysis.” *Materials and Structures* (RILEM, Paris), 13, 296–308.

132. Bažant, Z.P., Tsubaki, T., and Belytschko, T. B. (1980) “Concrete reinforcing net: safe design.” *J. of the Struct. Div.*, Proc. ASCE, 106, 1895–1906; Disc. 1981.

133. Bažant, Z.P., and Tsubaki, T. (1980). “Slip-dilatancy model for cracked reinforced concrete.” *J. of the Struct. Div.*, Proc. ASCE, 106, 1947–1966.

134. Bažant, Z.P., and Shieh, C. L. (1980). “Hysteretic fracturing endochronic theory for concrete.” *J. of the Engrg. Mech. Div.*, Proc. ASCE, 106, 929–950 (also ASCE Meeting Preprint No. 2511, Atlanta, Nov. 1979).

135. Bažant, Z.P. (1980). “Work inequalities for plastic-fracturing materials.” *Int. J. of Solids & Structures*, 16, 870–901.

136. Bažant, Z.P., and Tsubaki, T. (1980). “Nonlinear creep buckling of reinforced concrete columns.” *J. of the Struct. Div.*, Proc. ASCE, 106, 2235–2257.

137. Bažant, Z.P., and Tsubaki, T. (1980). “Weakly singular integral for creep rate of concrete.” *Mech. Research Communications*, 7, 335–340.

138. Bažant, Z.P., and Tsubaki, T. (1980). “Total strain theory and path-dependence of concrete.” *J. of the Engrg. Mech. Div.*, Proc. ASCE, 106, 1151–1173.

139. Cedolin, L., and Bažant, Z.P. (1980). “Effect of finite element choice in blunt crack band analysis.” *Computer Meth. in Appl. Mech. and Engrg.*, 24, 305–316.

140. Bažant, Z.P., and Cedolin, L. (1980). “Fracture mechanics of reinforced concrete.” *J. of the Engrg. Mech. Div.*, Proc., ASCE, 106, 1257–1306.

141. Seidensticker, R. W., Marchertas, A. H., and Bažant, Z.P. (1980). “Increasing primary containment capabilities of liquid-metal fast breeder reactor plants by the use of prestressed concrete.” *Nuclear Technology*, 51, 443–451.

142. Bažant, Z.P., Chern, J. C., and Thonguthai, W. (1980). “Finite element program for moisture and heat transfer in heated concrete.” *Nuclear Engrg. & Design*, 68, 61–70.

#### 1981

143. Bažant, Z.P., Hess, D., and Meiri, S. (1981). “High-temperature triaxial-torsional testing machine for concrete and rock.” *Geophysical Research Letters*, 8, 707–708.

#### 1982

144. Tsubaki, T., and Bažant, Z.P. (1982). “Random shrinkage stresses in aging viscoelastic vessels.” *J. of the Engrg. Mech. Div.*, ASCE, 108, 527–545.

145. Bažant, Z.P., and Chern, J. C. (1982). “Comment on the use of Ross’ hyperbola and recent comparisons of various practical creep prediction models.” *Cement and Concrete Research*, 12, 527–532; Disc. & Reply, Vol. 13 (1983), 444–448.

146. Bažant, Z.P., and Celep, Z. (1982). “Spurious reflection of elastic waves in nonuniform meshes of constant and linear strain finite elements.” *Computers and Structures*, 15 (4), 451–459.

147. Bažant, Z.P., and Oh, B.-H. (1982). “Strain-rate effect in rapid triaxial loading of concrete.” *J. of the Engrg. Mech. Div.*, ASCE, 108, EM5, 764–782.

148. Bažant, Z.P., and Raftshol, W. J. (1982). “Effect of cracking in drying and shrinkage specimens.” *Cement and Concrete Research*, 12, 209–226; Disc. 797–798.

149. Bažant, Z.P. (1982). “Input of creep and shrinkage characteristics for a structural analysis program.” *Materials and Structures* (RILEM, Paris), 15 (88), 283–290.

150. Bažant, Z.P., and Lin, Chuan (1982). “Concrete plate reinforcement: Frictional limit design.” *J. of the Struct. Division*, Proc. Am. Soc. of Civil Engrs., 108, 2443–2459; disc., 109, 2231–2234.

#### 1983

151. Bažant, Z.P., and Cedolin, L. (1983). "Finite element modeling of crack band propagation." *J. of Structural Engineering*, ASCE, 109, 69–92.
152. Bažant, Z.P., and Oh, B.-H. (1983). "Deformation of cracked net-reinforced concrete walls." *J. of Structural Engineering*, ASCE, 109, 93–106.
153. Madsen, H., and Bažant, Z.P. (1983). "Uncertainty analysis of creep and shrinkage effects in concrete structures." *Am. Concrete Inst. Journal*, 80, 116–127.
154. Bažant, Z.P. (1983). "Comment on orthotropic models for concrete and geomaterials." *J. of Engineering Mechanics* ASCE, 109 (3), 849–865.
155. Bažant, Z.P., Tsubaki, T., and Celep, Z. (1983). "Singular history integral for creep rate of concrete." *J. of Engineering Mechanics* ASCE, 109, 866–884.
156. Bažant, Z.P., and Ong, J. S. (1983). "Creep in continuous beam built span-by-span." *J. of Structural Engineering* ASCE, 109, 1646–1668.
157. Bažant, Z.P., and Oh, B.-H. (1983). "Crack band theory for fracture of concrete." *Materials and Structures* (RILEM, Paris), 16, 155–177.
158. Bažant, Z.P., and Celep, Z. (1983). "Spurious reflection of elastic waves due to gradually changing finite element size." *Intern. J. for Numerical Methods in Engineering*, 19, 631–646.
159. Bažant, Z.P., Krizek, R., and Shieh, C. L. (1983). "Hysteretic endochronic theory for sand." *J. of Engineering Mechanics* ASCE, 109, 1073–1095.
160. Bažant, Z.P., and Oh, B.-H. (1983). "Spacing of cracks in reinforced concrete." *J. of Structural Engineering*, ASCE, 109, 2066–2085.
161. Bažant, Z.P., and Oh, B.-H. (1983). "Crack spacing in reinforced concrete: approximate solution." *J. of Structural Engineering*, ASCE, 109, 2207–2212.
162. Bažant, Z.P., and Zebich, S. (1983). "Statistical linear regression analysis of prediction models for creep and shrinkage." *Cement and Concrete Research*, 13, 869–876.
163. Bažant, Z.P. (1983). "Mathematical model for creep and thermal shrinkage of concrete at high temperature." *Nuclear Engrg. and Design*, 76, 183–191.
- 1984**
164. Bažant, Z.P., and Wang, T.-S. (1984). "Spectral analysis of random shrinkage stresses in concrete" *J. of Engrg. Mechanics*, ASCE, 110, 173–186.
165. Bažant, Z.P., and Chern, J.-C. (1984). "Rate-type concrete creep law with reduced time." *J. of Engrg. Mechanics*, ASCE, 110, 329–340.
166. Bažant, Z.P. (1984). "Size effect in blunt fracture: Concrete, rock, metal." *J. of Engrg. Mechanics*, ASCE, 110 (4), 518–535.
167. Bažant, Z.P., and Oh, B.-H. (1984). "Deformation of progressively cracking reinforced concrete beams." *Am. Concrete Institute Journal*, 81 (3), 268–278.
168. Bažant, Z.P., and Cedolin, L. (1984). "Approximate linear analysis of concrete fracture by R-curves." *J. of Structural Engineering*, ASCE, 110, 1336–1355.
169. Bažant, Z.P., and Wang, T.-S. (1984). "Algorithm for aging viscoelastic structures under periodic load." *J. of Engrg. Mechanics*, ASCE, 110, 972–984.
170. Bažant, Z.P., and Oh, Byung, H. (1984). "Rock fracture via strain-softening finite elements." *J. of Engrg. Mechanics*, ASCE, 110, 1015–1035.
171. Bažant, Z.P., and Chern, J.-C. (1984). "Bayesian statistical prediction of concrete creep and shrinkage." *Am. Concrete Inst. Journal*, 81, 319–330.
172. Bažant, Z.P., and Kim, Jenn-Keun (1984). "Size effect in shear failure of longitudinally reinforced beams." *Am. Concrete Institute Journal*, 81, 456–468; Disc. & Closure 82 (1985), 579–583.
173. Bažant, Z.P., and Gambarova, P. (1984). "Crack shear in concrete: Crack band microplane model." *J. of Structural Engineering* ASCE, 110, 2015–2035.
174. Bažant, Z.P., and Panula, L. (1984). "Practical prediction of creep and shrinkage of high strength concrete." *Materials and Structures* (RILEM, Paris), 17 (101), 375–378.
175. Bažant, Z.P. (1984). "Design and analysis of concrete reactor vessels: New developments, problems and trends." *Nuclear Engrg. and Design*, 80, 181–202.
176. Bažant, Z.P., and Wang, T. S. (1984). "Spectral finite element analysis of random shrinkage in concrete." *J. of Structural Engrg.* ASCE, 110, 2196–2211.
177. Bažant, Z.P. (1984). "Imbricate continuum and progressive fracturing of concrete and geomaterials." *Meccanica* (Italy) (Special issue commemorating the centennial of A. Castigliano's death), 19, 86–93.
178. Bažant, Z.P., Belytschko, T. B., and Chang, T.-P. (1984). "Continuum model for strain softening." *J. of Engrg. Mechanics* ASCE, 110(12), 1666–1692.
179. Bažant, Z.P. (1984). "Imbricate continuum and its variational derivation." *J. of Engrg. Mech.*, ASCE 110(12), 1693–1712.
180. Bažant, Z.P., and Chern, J.-C. (1984). "Double power logarithmic law for concrete creep." *Cement and Concrete Research*, 14, 793–806.
181. Bažant, Z.P., and Chang, T.-P. (1984). "Instability of nonlocal continuum and strain averaging." *J. of Engrg. Mechanics*, ASCE 110, 1441–1450.
182. Wnuk, M. P., Bažant, Z.P., and Law, E. (1984). "Stable growth of fracture in brittle aggregate materials." *Theor. & Applied Fracture Mech.*, 2, 259–286.
- 1985**
183. Bažant, Z.P., and Chern, J.-C. (1985). "Log-double power law for concrete creep." *Am. Concrete Inst. Journal*, 82, 665–675.
184. Bažant, Z.P., and Chern, J.-C. (1985). "Triple power law for concrete creep." *J. of Engrg. Mechanics*, ASCE 111, 63–83.
185. Bažant, Z.P., and Belytschko, T. B. (1985). "Wave propagation in strain-softening bar: Exact solution." *J. of Engrg. Mechanics*, ASCE 111, 381–389.
186. Bažant, Z.P., and Oh, B.-H. (1985). "Microplane model for progressive fracture of concrete and rock." *J. of Engrg. Mechanics*, ASCE 111, 559–582.
187. Bažant, Z.P., and Chern, J.-C. (1985). "Strain-softening with creep and exponential algorithm." *J. of Engrg. Mechanics* ASCE 111, EM3, 391–415.

188. Bažant, Z.P., and Chern, J.-C. (1985). "Concrete creep at variable humidity: Constitutive law and mechanism." *Materials and Structures* (RILEM, Paris), 18, 1–20.

189. Bažant, Z.P. (1985). "Constitutive equation of wood at variable humidity and temperature." *Wood Science and Technology* (Springer, Berlin), 19, 159–177.

190. Bažant, Z.P., and Meiri, S. (1985). "Measurements of compression creep of wood at humidity changes." *Wood Science and Technology* (Springer, Berlin), 19, 179–182.

191. Bažant, Z.P., and Liu, K.-L. (1985). "Random creep and shrinkage in structures: Sampling." *J. of Structural Engrg. ASCE* 111, 1113–1134.

192. Bažant, Z.P., and Wang, T. S. (1985). "Practical prediction of cyclic humidity effect in creep and shrinkage of concrete." *Materials and Structures* (RILEM, Paris), 18 (106), 247–252.

### 1986

193. Bažant, Z.P., and Oh, B.-H. (1986). "Efficient numerical integration on the surface of a sphere." *Zeitschrift für angewandte Mathematik und Mechanik* (ZAMM, Berlin), 66 (1), 37–49.

194. Bažant, Z.P., Kim, Jenn-Keun, and Pfeiffer, P. A. (1986). "Nonlinear fracture properties from size effect tests." *J. of Structural Engrg.*, ASCE 112, ST2, 289–307.

195. Bažant, Z.P., and Pfeiffer, P. A. (1986). "Shear fracture tests of concrete." *Materials and Structures* (RILEM, Paris), 19, 111–121.

196. Bažant, Z.P. (1986). "Response of aging linear systems to ergodic random input." *J. of Engrg. Mechanics*, ASCE 112, EM3, 322–342.

197. Bažant, Z.P., Prasannan, S., Hagen, M., Meiri, S., Vaitys, R., Klima, R., and Hess, J. D. (1986). "Large triaxial-torsional testing machine with hygrothermal control." *Materials and Structures* (RILEM, Paris), 19 (112), 285–294.

198. Aguinaga-Zapata, M., and Bažant, Z.P. (1986). "Creep deflections in slab buildings and forces in shores during construction." *Journal of the Am. Concrete Inst.*, 83, 719–726. (disc. 1987, 361–363).

199. Bažant, Z.P., Bishop, F.C., and Chang, T.-P. (1986). "Confined compression tests of cement paste and concrete up to 300 ksi." *ACI Materials J.*, 83, 553–560 (also DeiPoli Anniversary volume, Politecnico di Milano, Italy, ed. by L. Cedolin, 1985, 21–41).

200. Bažant, Z.P., and Cao, Z. (1986). "Size effect in shear failure of prestressed concrete beams." *Am. Concrete Inst. Journal*, 83, 260–268.

201. Bažant, Z.P., and Cao, Z. (1986). "Size effect in brittle failure of unreinforced pipes." *Am. Concrete Institute Journal*, 83, 365–373.

202. Belytschko, T. B., Bažant, Z.P., Hyun, Y. W., and Chang, T.-P. (1986). "Strain-softening materials and finite element solutions." *Computers and Structures*, 23 (2) 163–180.

203. Bažant, Z.P., and Prasannan, S. (1986). "High temperature triaxial-torsional creep tests of concrete at

various hygral conditions." *Nuclear Engrg. & Design*, 94, 137–151.

204. Bažant, Z.P., and Kim, Jenn-Keun (1986). "Creep of anisotropic clay: microplane model." *Jour. of Geotechnical Engrg.*, ASCE 112, 458–475.

205. Lin, Feng-Bao, and Bažant, Z.P. (1986). "Convexity of smooth yield surface of frictional materials." *J. of Engrg. Mechanics*, ASCE 113 (11), 1259–1261.

### 1987

206. Bažant, Z.P., Lee, S.-G., and Pfeiffer, P. A. (1987). "Size effect tests and fracture characteristics of aluminum." *Engrg. Fracture Mechanics*, 26 (1), 45–57.

207. Bažant, Z.P., and Chang, T.-P. (1987). "Nonlocal finite element analysis of strain-softening solids." *J. of Structural Engineering*, ASCE 113 (1), 89–105.

208. Bažant, Z.P., and Cao, Z. (1987). "Size effect in punching shear failure of slabs." *ACI Structural Journal* (Am. Concrete Inst.) 84, 44–53.

209. Zubelewicz, A., and Bažant, Z.P. (1987). "Constitutive model with rotating active plane and true stress." *J. of Engrg. Mechanics*, ASCE 113, 398–416.

210. Bažant, Z.P., Wittmann, F. H., Kim, Jenn-Keun, and Alou, F. (1987). "Statistical extrapolation of shrinkage data—Part I: Regression." *ACI Materials Journal*, 84, 20–34.

211. Bažant, Z.P., Kim, Jenn-Keun, Wittmann, F. H., and Alou, F. (1987). "Statistical extrapolation of shrinkage data—Part II: Bayesian updating." *ACI Materials Journal*, 84, 83–91.

212. Křístek, V., and Bažant, Z.P. (1987). "Shear lag effect and uncertainty in concrete box girder creep." *J. of Structural Engrg.*, ASCE 113 (3), 557–574.

213. Bažant, Z.P. (1987). "Limitations of strain hardening model for concrete creep." *Cement and Concrete Research* (17), 505–509.

214. Bažant, Z.P., and Prat, P. C. (1987). "Creep of anisotropic clay: New microplane model." *J. of Engrg. Mechanics* ASCE 113 (7), 1000–1064.

215. Bažant, Z.P. (1987). "Matrix force-displacement relations in aging viscoelasticity." *J. of Engrg. Mechanics*, ASCE 113 (8), 1235–1243.

216. Bažant, Z.P., and Sun, H.-H. (1987). "Size effect in diagonal shear failure: Influence of aggregate size and stirrups." *ACI Materials Journal*, 84 (4), 259–272.

217. Bažant, Z.P., Şener, S. and Kim, Jenn-Keun (1987). "Effect of cracking on drying permeability and diffusivity of concrete." *ACI Materials Journal*, 84 (Sept.-Oct.), 351–357.

218. Bažant, Z.P., and Şener, S. (1987). "Size effect in torsional failure of concrete beams." *J. of Struct. Engrg.* ASCE, 113 (10), 2125–2136.

219. Belytschko, T., Wang, X.-J., Bažant, Z.P., and Hyun, T. (1987). "Transient solutions for one-dimensional problems with strain-softening." *Trans. ASME, J. of Applied Mechanics* 54 (3), 513–516.

220. Bažant, Z.P., and Chern, J.-C. (1987). "Stress-induced thermal and shrinkage strains in concrete." *J. of Engrg. Mechanics*, ASCE 113 (10), 1493–1511.

221. Pijaudier-Cabot, G., and Bažant, Z.P. (1987). "Nonlocal damage theory." *J. of Engrg. Mechanics*, ASCE 113 (10), 1512–1533.
222. Bažant, Z.P., Pan, J.-Y., and Pijaudier-Cabot, G. (1987). "Softening in reinforced concrete beams and frames." *ASCE J. of Struct. Engrg.* 113 (12), 2333–2347.
223. Bažant, Z.P., Pijaudier-Cabot, G., and Pan, J.-Y. (1987). "Ductility, snapback, size effect and redistribution in softening beams and frames." *ASCE J. of Structural Engrg.* 113 (12), 2348–2364.
224. Lin, Feng-Bao, Bažant, Z.P., Chern, J.-C., and Marchertas, A. H. (1987). "Concrete model with normality and sequential identification." *Computers and Structures* 26 (6), 1011–1025.
225. Zubelewicz, A., and Bažant, Z.P. (1987). "Interface modeling of fracture in aggregate composites." *ASCE J. of Engrg. Mech.*, 113 (11), 1619–1630.
226. Bažant, Z.P., and Pfeiffer, P. A. (1987). "Determination of fracture energy from size effect and brittleness number." *ACI Materials Jour.*, 84.
227. Bažant, Z.P. (1987). "Snapback instability at crack ligament tearing and its implication for fracture micromechanics." *Cement and Concrete Research* 17, 951–967.
228. Wittmann, F.H., Bažant, Z.P., Alou, F., and Kim, Jenn-Keun (1987). "Statistics of shrinkage test data." *Cement, Concrete and Aggregates* (ASTM), 9 (2), 129–153.
229. Bažant, Z.P. (1987). "Why continuum damage is nonlocal: Justification by quasi-periodic microcrack array." *Mechanics Research Communications*, 14 (5/6), 407–419.
- 229a. Chern, J.C., Marchertas, A.H., Bažant, Z.P., and Lin, F.-B. (1987). "Damage-plastic loading surface model for concrete." *Nuclear Engrg. and Design* 101, 107–125.
- 1988**
230. Bažant, Z.P., and Prat, P.C. (1988). "Measurement of mode III fracture energy of concrete." *Nuclear Engineering and Design* 106, 1–8.
231. Bažant, Z.P., and Pijaudier-Cabot, G. (1988). "Nonlocal continuum damage, localization instability and convergence." *ASME J. of Applied Mechanics*, 55, 287–293.
232. Bažant, Z.P., and Zubelewicz, A. (1988). "Strain-softening bar and beam: Exact nonlocal solution." *International J. of Solids and Structures*, 24 (7), 659–673.
233. Bažant, Z.P., and Prat, P. C. (1988). "Effect of temperature and humidity on fracture energy of concrete." *ACI Materials Jour.* 84 (July), 262–271.
234. Bažant, Z.P., and Lin, Feng -Bao. (1988). "Non-local yield limit degradation." *International J. for Numerical Methods in Engineering*, 26, 1805–1823.
235. Pijaudier-Cabot, G., Bažant, Z.P., and Tabbara, M. (1988). "Comparison of various models for strain-softening." *Engineering Computations* 5 (June), 141–150.
236. Bažant, Z.P. (1988). "Softening instability: Part I — Localization into a planar band." *J. of Appl. Mech. ASME* 55, 517–522.
237. Bažant, Z.P. (1988). "Softening instability: Part II — Localization into ellipsoidal regions." *J. of Appl. Mech. ASME* 55, 523–529.
238. Bažant, Z.P., and Şener, S. (1988). "Size effect in pullout tests." *ACI Materials Journal* 85, 347–351.
239. Bažant, Z.P., and Prat, P. C. (1988). "Microplane model for brittle plastic material: I. Theory." *J. of Engrg. Mech.* ASCE 114, 1672–1688.
240. Bažant, Z.P., and Prat, P. C. (1988). "Microplane model for brittle plastic material: II. Verification." *J. of Engrg. Mech.* ASCE 114, 1689–1702.
241. Bažant, Z.P., Chern, J.-C., Rosenberg, A. M., and Gaidis, J. M. (1988). "Mathematical model for freeze-thaw durability of concrete." *J. of Amer. Ceramic Soc.* 71 (9), 776–783.
242. Bažant, Z.P., and Lin, Feng-Bao. (1988). "Non-local smeared cracking model for concrete fracture." *J. of Struct. Engrg.* ASCE 114 (11), 2493–2510.
243. Bažant, Z.P., and Prasannan, S. (1988). "Solidification theory for aging creep." *Cement and Concrete Research* 18 (6), 923–932.
244. Bažant, Z.P. (1988). "Stable states and paths of structures with plasticity or damage." *J. of Engrg. Mech.* ASCE 114 (12), 2013–2034.
245. Bažant, Z.P., Şener, S., and Prat, P. C. (1988). "Size effect tests of torsional failure of plain and reinforced concrete beams." *Materials and Structures* (RILEM, Paris) 21, pp. 425–430.
246. RILEM Committee TC-69 (1988). "Material models for structural creep analysis" (princ. author and chair Z.P. Bažant, co-authors J. Dougill, C. Huet, T. Tsubaki, F. Wittmann), Chapter 2 in *Mathematical Modeling of Creep and Shrinkage of Concrete*, Z.P. Bažant, ed., J. Wiley, Chichester & New York, 99–200.
- 246a. RILEM Committee TC-69, Subcommittee 5 (1988). "Probabilistic Models." (princ. author T. Tsubaki, co-authors Z.P. Bažant, O. Buyukozturk, C. Huet, H.O. Madsen, F.H. Wittmann), Chapter 3 in *Mathematical Modeling of Creep and Shrinkage of Concrete*, Z.P. Bažant, ed., J. Wiley, Chichester & New York, 311–383.
247. RILEM Committee TC-69 (1988). "Creep analysis of structures" (principal authors Z.P. Bažant and O. Buyukozturk), *ibid.*, 217–273.
248. Pijaudier-Cabot, G., and Bažant, Z.P. (1988). "Dynamic stability analysis with nonlocal damage." *Computers and Structures* 29 (3) 503–507.
- 1989**
249. Bažant, Z.P., and Pijaudier-Cabot, G. (1989). "Measurement of characteristic length of nonlocal continuum." *J. of Engrg. Mech.* ASCE 115 (4), 755–767.
250. Bažant, Z.P., and Prasannan, S. (1989). "Solidification theory for concrete creep: I. Formulation." *Journal of Engineering Mechanics* ASCE 115 (8) 1691–1703.
251. Bažant, Z.P., and Prasannan, S. (1989). "Solidification theory for concrete creep: II. Verification and application." *J. of Engineering Mechanics* ASCE 115 (8) 1704–1725.
252. Bažant, Z.P., and Kim, Joong-Koo (1989). "Segmental box girder: deflection probability and Bayesian updating." *Journal of Structural Engineering* ASCE, 115 (10) 2528–2547.

253. Bažant, Z.P., and Cedolin, L. (1989). "Initial postcritical analysis of asymmetric bifurcation in frames." *ASCE J. of Engrg. Mech.* 115 (11), 2845–2857.

254. Bažant, Z.P. (1989). "Identification of strain-softening constitutive relation from uniaxial tests by series coupling model for localization." *Cement and Concrete Research* 19(6), 973–977.

255. Bažant, Z.P. Chern, J.-C., and Wu Y. G. (1989). "Basic creep formula for aging concrete: Sinh-double power law." *Cement, Concrete and Aggregates* (ASIM) 11 (2), 85–91.

256. Bažant, Z.P. Prat, P. C., and Tabbara, M. R. (1990). "Antiplane shear fracture tests (Mode III)." *ACI Materials Journal* 87, Jan.-Feb., 12–19.

257. Bažant, Z.P., and Lin, Feng-Bao (1989). "Stability against localization of softening into ellipsoids and bands: Parameter study." *Int. J. of Solids and Structures* 25 (12), 1483–1498.

258. Xi, Yunping, and Bažant, Z.P. (1989). "Sampling analysis of concrete structures for creep and shrinkage with correlated random material parameters." *Probabilistic Engineering Mechanics* 4 (4), 174–186.

#### 1990

259. Bažant, Z.P., and Kazemi, M.T. (1990). "Determination of fracture energy, process zone length and brittleness number from size effect, with application to rock and concrete." *Int. J. of Fracture*, 44, 111–131.

260. Bažant, Z.P., and Kazemi, M. T. (1990). "Size effect in fracture of ceramics and its use to determine fracture energy and effective process zone length." *J. of American Ceramic Society* 73 (7), 1841–1853.

261. Bažant, Z.P., Tabbara, M. R., Kazemi, M. T. and Pijaudier-Cabot, G. (1990). "Random particle model for fracture of aggregate or fiber composites." *ASCE J. of Engrg. Mech.*, 116 (8) 1686–1705.

262. Bažant, Z.P., and Özbolt, J. (1990). "Nonlocal microplane model for fracture, damage, and size effect in structures." *ASCE J. of Engrg. Mech.* 116 (11), 2484–2504.

263. Bažant, Z.P. (1990). "A critical appraisal of 'no-tension' dam design: A fracture mechanics viewpoint." *Dam Engineering* 1 (4), 237–247; Errata 1, 1992.

264. Gettu, R., Bažant, Z.P., and Karr, M. E. (1990). "Fracture properties and brittleness of high-strength concrete", *ACI Materials Journal* 87 (Nov.-Dec.), 608–618.

265. ACI Committee 446, Fracture Mechanics (Z.P. Bažant, Chairman and principal author)(1990). "Fracture mechanics of concrete: Concepts, models and determination of material properties." (summary of Report ACI 446.1R-XX), ACI International 12 (Dec.), 67–69.

266. Bažant, Z.P. (1990). "Equilibrium path bifurcation due to strain-softening localization in ellipsoidal region." *Journal of Applied Mechanics* ASME 57(4), 810–814.

267. Bažant, Z.P. (1990). "Justification and improvement of Kienzler and Herrmann's estimate of stress intensity factors of cracked beam." *Engrg. Fracture Mechanics* 36 (3), 523–525.

268. Bažant, Z.P. (1990). "Smearred-tip superposition method for nonlinear and time-dependent fracture." *Mechanics Research Communications*, 17(5), 343–351.

269. Bažant, Z.P. (1990). "Size effect method for determining fracture energy and process zone size of concrete" (RILEM Recommendation TC89-FMT). *Materials and Structures* (RILEM, Paris) 23, 461–465 (submitted by RILEM Committee TC 89-FMT, chaired by S.P. Shah).

#### 1991

270. Bažant, Z.P., Gettu, R., and Kazemi, M.T. (1991). "Identification of nonlinear fracture properties from size-effect tests and structural analysis based on geometry-dependent R-curves." *International Journal of Rock Mechanics and Mining Sciences*, 28 (1), 43–51.

271. Bažant, Z.P., Kazemi, M.T., Hasegawa, T., and Mazars, J. (1991). "Size effect in Brazilian split-cylinder tests: measurement and fracture analysis." *ACI Materials Journal* 88 (3), 325–332.

272. Bažant, Z.P. (1991). "Why continuum damage is nonlocal: Micromechanics arguments." *Journal of Engineering Mechanics* ASCE 117 (5), 1070–1087.

273. Bažant, Z.P., and Kazemi, M.T. (1991). "Size effect on diagonal shear failure of beams without stirrups." *ACI Structural Journal* 88 (3), 268–276.

274. Prat, P.C., and Bažant, Z.P. (1991). "Microplane model for triaxial deformation of saturated cohesive soils." *Journal of Geotechnical Engineering* ASCE 117 (6), 891–912.

275. Pijaudier-Cabot, G., and Bažant, Z.P. (1991). "Cracks interacting with particles or fibers in composite materials." *J. of Engineering Mechanics* ASCE 117 (7), 1611–1630.

276. Bažant, Z.P., Cedolin, L., and Tabbara, M.R. (1991). "New method of analysis for slender columns." *ACI Structural J.* 88 (4), 391–401.

277. Bažant, Z.P., and Kim, Joong-Koo (1991). "Segmental box girder: Effect of spatial random variability of material on deflections." *J. of Structural Engineering* ASCE 117 (8), 2542–2547.

278. Bažant, Z.P., and Xu, K. (1991). "Size effect in fatigue fracture of concrete." *ACI Materials J.* 88 (4) 390–399.

279. Bažant, Z.P., and Kazemi, M.T. (1991). "Size dependence of concrete fracture energy determined by RILEM work-of-fracture method." *International J. of Fracture* 51, 121–138.

280. Carol, I., Bažant, Z.P., and Prat, P.C. (1991). "Geometric damage tensor based on microplane model." *J. of Engineering Mechanics* 117 (10), 2429–2448.

281. Bažant, Z.P., Xi, Yunping, and Reid, S.G. (1991). "Statistical size effect in quasi-brittle structures: I. Is Weibull theory applicable?" *ASCE J. of Engineering Mechanics* 117 (11), 2609–2622.

282. Bažant, Z.P., and Xi, Yunping (1991). "Statistical size effect in quasi-brittle structures: II. Nonlocal theory." *ASCE J. of Engineering Mechanics* 117 (11), 2623–2640.

283. Bažant, Z.P., and Kim, Joong-Koo (1991). "Consequences of diffusion theory for shrinkage of concrete."

*Materials and Structures* (RILEM, Paris) 24 (143), 323–326.

284. Bažant, Z.P., Kim, Joong-Koo, and Panula, L. (1991). “Improved prediction model for time-dependent deformations of concrete: Part 1–Shrinkage.” *Materials and Structures* (RILEM, Paris) 24 (143), 327–345.

285. Bažant, Z.P., and Kim, Joong-Koo (1991). “Improved prediction model for time-dependent deformations of concrete: Part 2–Basic creep.” *ibid.*, 24 (144), 409–421.

#### 1992

286. Bažant, Z.P., and Kim, Joong-Koo (1992). “Improved prediction model for time-dependent deformations of concrete: Part 3–Creep at drying.” *Materials and Structures* (RILEM, Paris) 25 (145), 21–28.

287. Bažant, Z.P., and Kim, Joong-Koo (1992). “Improved prediction model for time-dependent deformations of concrete: Part 4–Temperature effects.” *ibid.*, 25 (146), 84–94.

288. Bažant, Z.P., and Kim, Joong-Koo (1992). “Improved prediction model for time-dependent deformations of concrete: Part 5–Cyclic load and cyclic humidity.” *ibid.*, 25 (147), 163–169.

289. Bažant, Z.P., Panula, L., Kim, Joong-Koo, and Xi, Yunping (1992). “Improved prediction model for time-dependent deformations of concrete: Part 6–Simplified code-type formulation” *ibid.*, 25 (148), 219–223.

289A.  $\equiv$  310  $\equiv$  Part 7 of this series.

290. Bažant, Z.P., Křístek, V., and Vítek, J.L. (1992). “Drying and cracking effects in box-girder bridge segment.” *ASCE J. of Structural Engineering* 118 (1), 305–321.

291. Chern, J.-C., You, C.-M., and Bažant, Z.P. (1992). “Deformation of progressively cracking partially prestressed concrete beams.” *PCI Journal* 37 (1), 74–85; Disc. 37 (6), 72–73.

292. Gioia, G., Bažant, Z.P., and Pohl, B. (1992). “Is no-tension dam design always safe?” *Dam Engineering* 3 (1), 23–34 (disc. closure 4 (1), 59).

293. Bažant, Z.P., and Ožbolt, J. (1992). “Compression failure of quasi-brittle material: Nonlocal microplane model.” *J. of Engineering Mechanics*, ASCE 118 (3), 540–556.

294. Bažant, Z.P., and Tabbara, M.R. (1992). “Bifurcation and stability of structures with interacting propagating cracks.” *Int. J. of Fracture* 53, 273–289.

295. Carol, I., Prat, P.C., and Bažant, Z.P. (1992). “New explicit microplane model for concrete: Theoretical aspects and numerical implementation.” *Int. J. Solids Structures* 29 (9), 1173–1191.

296. He, S., Plesha, M.E., Rowlands, R.E., and Bažant, Z.P. (1992). “Fracture energy tests of dam concrete with rate and size effects.” *Dam Engineering* 3 (2), 139–159.

297. Ožbolt, J., and Bažant, Z.P. (1992). “Microplane model for cyclic triaxial behavior of concrete.” *J. of Engineering Mechanics*, ASCE 118 (7), 1365–1386.

298. Bažant, Z.P., and Gettu, R. (1992). “Rate effects and load relaxation: Static fracture of concrete.” *ACI*

*Materials Journal*, 89 (5), 456–468.

299. Bažant, Z.P. (1992). “Large-scale thermal bending fracture of sea ice plates.” *J. of Geophysical Research (Oceans)*, 97 (C11), 17,739–17,751.

#### 1993

300. Bažant, Z.P., and Xi, Yunping (1993). “Stochastic drying and creep effects in concrete structures.” *J. of Structural Engineering*, ASCE, 119 (1), 301–322.

301. Bažant, Z.P., Lin, F.-B., and Lippmann, H. (1993). “Fracture energy release and size effect in borehole breakout.” *Int. Journal for Numerical and Analytical Methods in Geomechanics*, 17, 1–14.

302. Bažant, Z.P., and Cedolin, L. (1993). “Why direct tension specimens break flexing to the side.” *J. of Struct. Engrg.*, ASCE, 119 (4), 1101–1113.

303. Hasegawa, T., and Bažant, Z.P. (1993). “Nonlocal microplane concrete model with rate effect and load cycles. I. General formulation.” *J. of Materials in Civil Engrg.*, ASCE, 5 (3), 372–410.

304. Hasegawa, T., and Bažant, Z.P. (1993). “Nonlocal microplane concrete model with rate effect and load cycles. II. Application and verification.” *J. of Materials in Civil Engrg.*, ASCE, 5 (3), 411–417.

305. Bažant, Z.P. (1993). “Scaling laws in mechanics of failure.” *J. of Engrg. Mech.*, ASCE, 119 (9), 1828–1844.

306. Bažant, Z.P., Bai, S.-P., and Gettu, R. (1993). “Fracture of rock: Effect of loading rate.” *Engineering Fracture Mechanics*, 45 (3), 393–398.

307. Bažant, Z.P., and Schell, William F. (1993). “Fatigue fracture of high-strength concrete and size effect.” *ACI Materials Journal*, 90 (5), 472–478.

308. Carol, I., and Bažant, Z.P. (1993). “Viscoelasticity with aging caused by solidification of nonaging constituent.” *J. of Engrg. Mech.*, ASCE, 119 (11), 2252–2269.

309. Bažant, Z.P., and Jirásek, M. (1993). “R-curve modeling of rate and size effects in quasibrittle fracture.” *Int. Journal of Fracture*, 62, 355–373.

310. Bažant, Z.P., Xi, Yunping, and Baweja, S. (1993). “Improved prediction model for time-dependent deformations of concrete: Part 7 – Short form of BP-KX model, statistics and extrapolation of short-time data.” *Materials and Structures*, 26, 567–574.

#### 1994

311. Bažant, Z.P., and Xi, Yunping (1994). “Drying creep of concrete: Constitutive model and new experiments separating its mechanisms.” *Materials and Structures*, 27, 3–14.

312. Bažant, Z.P. (1994). “Nonlocal damage theory based on micromechanics of crack interactions.” *J. of Engrg. Mech.*, ASCE, 120 (3), 593–617; Addendum and Errata 120, 1401–02.

313. Bažant, Z.P., Kwon, Y.W. (1994). “Failure of slender and stocky reinforced concrete columns: Tests of size effect.” *Materials and Structures*, 27, 79–90.

314. Jirásek, M., and Bažant, Z.P. (1994). “Localization analysis of nonlocal model based on crack interactions.” *J. of Engrg. Mech.*, ASCE 120 (3), 1521–1542.

315. Bažant, Z.P., and Beissel, S. (1994). "Smeared-tip superposition method for cohesive fracture with rate effect and creep." *Intern. J. of Fracture* 65, 277–290.
316. Bažant, Z.P., Huet, C., and Müller, H.S. (1994). "Comment on recent analysis of concrete creep linearity and applicability of principle of superposition." *Materials and Structures* (RILEM, Paris) 27, 359–361.
317. Bažant, Z.P., and Li, Y.-N. (1994). "Cohesive crack model for geomaterials: stability analysis and rate effect." *Applied Mechanics Reviews* 47 (6, Part 2, June), S91–S96 (part of *Mechanics USA 1994*, ed. by A.S. Kobayashi, Proc., 12th U.S. Nat. Congress of Appl. Mechanics, Seattle, WA, June).
318. Bažant, Z.P., and Li, Y.-N. (1994). "Penetration fracture of sea ice plate: Simplified analysis and size effect." *J. of Engrg. Mech.* ASCE 120 (6), 1304–1321.
319. Li, Y.-N., and Bažant, Z.P. (1994). "Penetration fracture of ice plate: 2D analysis and size effect." *J. of Engrg. Mech.* ASCE 120 (7), 1481–1498.
320. Bažant, Z.P., and Jirásek, M. (1994). "Nonlocal model based on crack interactions: A localization study." *J. of Engrg. Materials & Technology, ASME* 116 (July), 256–259.
321. Bažant, Z.P., and Desmorat, R. (1994). "Size effect in fiber or bar pullout with interface softening slip." *J. of Engrg. Mech.* ASCE 120 (9), 1945–1962.
322. Li, Y.-N., and Bažant, Z.P. (1994). "Eigenvalue analysis of size effect for cohesive crack model." *Int. J. of Fracture* 66, 213–226.
323. Bažant, Z.P., Ožbolt, J., and Eligehausen, R. (1994). "Fracture size effect: review of evidence for concrete structures." *J. of Struct. Engrg.* ASCE, 120 (8), 2377–2398.
324. Xi, Yunping, Bažant, Z.P., and Jennings, H.M. (1994). "Moisture diffusion in cementitious materials: Adsorption isotherms." *Advanced Cement Based Materials* 1, 248–257.
325. Xi, Yunping, Bažant, Z.P., Molina, L., and Jennings, H.M. (1994). "Moisture diffusion in cementitious materials: Moisture capacity and diffusivity." *Advanced Cement Based Materials* 1, 258–266.
- 1995**
326. Bažant, Z.P., and Xi, Yunping (1995). "Continuous retardation spectrum for solidification theory of concrete creep." *J. of Engrg. Mech.* ASCE 121 (2), 281–288.
327. Bažant, Z.P., and Li, Y.-N. (1995). "Penetration fracture of sea ice plate." *Int. J. Solids Structures* 32, No. 3/4, 303–313.
328. RILEM Techn. Com. TC-107 (1995) (Z.P. Bažant and I. Carol, main authors), "Guidelines for characterizing concrete creep and shrinkage in structural design codes or recommendations." *Materials and Structures* 28, 52–55.
329. Bažant, Z.P., Gu, Wei-Hwa, and Faber, K.T. (1995). "Softening reversal and other effects of a change in loading rate on fracture of concrete." *ACI Materials Journal* 92, 3–9.
330. Bažant, Z.P., and Li, Z. (1995). "Modulus of rupture: size effect due to fracture initiation in boundary layer." *J. of Struct. Engrg.* ASCE, 121 (4), 739–746.
331. Bažant, Z.P. (1995). "Creep and Damage in Concrete." *Materials Science of Concrete IV*, J. Skalny and S. Mindess, Eds., Am. Ceramic. Soc., Westerville, OH, 355–389.
332. Jirásek, M., and Bažant, Z.P. (1995). "Macroscopic fracture characteristics of random particle systems." *Intern. J. of Fracture*, 69(3), 201–228.
333. Bažant, Z.P., Li, Z., and Thoma, M. (1995). "Identification of stress-slip law for bar or fiber pullout by size effect tests." *J. of Engrg. Mech.* ASCE, 121(5), 620–625.
334. Bažant, Z.P., and Baweja, S. (1995), in collaboration with RILEM Committee TC 107-GCS, "Creep and shrinkage prediction model for analysis and design of concrete structures—model B3 (RILEM Recommendation 107-GCS). *Materials and Structures* (RILEM, Paris) 28, 357–365; with Errata, Vol. 29 (March 1996), p. 126.
335. Bažant, Z.P., and Baweja, S. (1995). "Justification and refinement of Model B3 for concrete creep and shrinkage. 1. Statistics and sensitivity." *Materials and Structures* (RILEM, Paris) 28, 415–430.
336. Bažant, Z.P., and Baweja, S. (1995). "Justification and refinement of Model B3 for concrete creep and shrinkage. 2. Updating and theoretical basis." *Materials and Structures* (RILEM, Paris) 28, 488–495.
337. Jirásek, M., and Bažant, Z.P. (1995). "Particle model for quasibrittle fracture and application to sea ice." *J. of Engrg. Mech.* ASCE 121 (9), 1016–1025.
338. Li, Y.-N., Hong, A.N., and Bažant, Z.P. (1995). "Initiation of parallel cracks from surface of elastic half-plane." *Int. J. of Fracture* 69, 357–369.
339. Granger, L.P., and Bažant, Z.P. (1995). "Effect of composition on basic creep of concrete and cement paste." *J. of Engrg. Mechanics* ASCE 121 (11), 1261–1270.
340. Bažant, Z.P. (1995). "Scaling of quasibrittle fracture and the fractal question." *ASME J. of Materials and Technology* 117 (Oct.), 361–367 (Materials Division Special 75<sup>th</sup> Anniversary Issue).
341. Bažant, Z.P., and Li, Yuan-Neng (1995). "Stability of cohesive crack model: Part I—Energy principles." *Trans. ASME, J. of Applied Mechanics* 62 (Dec.), 959–964.
342. Bažant, Z.P., and Li, Yuan-Neng (1995). "Stability of cohesive crack model: Part II—Eigenvalue analysis of size effect on strength and ductility of structures." *Trans. ASME, J. of Applied Mechanics* 62 (Dec.), 965–969.
343. Tandon, S., Faber, K.T., Bažant, Z.P., and Li, Y.-N. (1995). "Cohesive crack modeling of influence of sudden changes in loading rate on concrete fracture." *Engineering Fracture Mechanics* 52 (6), 987–997.
- 1996**
344. Bažant, Z.P. (1996). "Is no-tension design of concrete or rock structures always safe?—Fracture analysis." *J. of Structural Engrg.* ASCE 122 (1), 2–10.

345. Bažant, Z.P. (1996). "Analysis of work-of-fracture method for measuring fracture energy of concrete." *J. of Engrg. Mechanics* ASCE 122 (2), 138–144.
346. Ožbolt, J., and Bažant, Z.P. (1996). "Numerical smeared fracture analysis: Nonlocal microcrack interaction approach." *Int. J. for Numerical Methods in Engrg.* 39, 635–661.
347. Bažant, Z.P., Xiang, Y., and Prat, P.C. (1996). "Microplane model for concrete. I. Stress-strain boundaries and finite strain." *J. of Engrg. Mechanics* ASCE 122 (3), 245–254 (with Errata, Vol. 123(3), p.411).
348. Bažant, Z.P., Xiang, Y., Adley, M.D., Prat, P.C., and Akers, S.A. (1996). "Microplane model for concrete. II. Data delocalization and verification." *J. of Engrg. Mechanics* ASCE 122 (3), 255–262.
349. Bažant, Z.P., and Li, Zhengzhi (1996). "Zero-brittleness size-effect method for one-size fracture test of concrete." *J. of Engrg. Mechanics* ASCE 122 (5), 458–468.
350. Bažant, Z.P. (1996). "Finite strain generalization of small-strain constitutive relations for any finite strain tensor and additive volumetric-deviatoric split." *Int. J. of Solids and Structures* 33 (20–22), 2887–2897 (special issue in memory of Juan Simo).
351. Bažant, Z.P., Daniel, I.M., and Li, Zhengzhi (1996). "Size effect and fracture characteristics of composite laminates." *J. of Engrg. Materials and Technology* ASME 118 (3), 317–324.
352. Pijaudier-Cabot, G., and Bažant, Z.P. (1996). "Comment on hyperbolicity of wave problem for Valanis' global damage theory." *J. of Applied Mechanics* ASME 63 (3), 843–845 (Brief Note).
353. Tang, T., Bažant, Z.P., Yang, S., and Zollinger, D. (1996). "Variable-notch one-size test method for fracture energy and process zone length." *Engineering Fracture Mechanics* 55 (3), 383–404.
354. Bažant, Z.P., and Jirásek, M. (1996), "Softening-induced dynamic localization instability: seismic damage in frames." *J. of Engrg. Mechanics* ASCE 122 (12), 1149–1158.
355. Bažant, Z.P. (1996). "Size effect aspects of measurement of fracture characteristics of quasibrittle material." *Advanced Cement Based Materials* 4 (3/4), 128–137 (see also P132a).
356. Bažant, Z.P., and Baweja, S. (1996). "Short form of creep and shrinkage prediction model B3 for structures of medium sensitivity" (Addendum to RILEM Recommendation TC 107-GCS). *Materials and Structures* (Paris) 29 (Dec.), 587–593.
- 1997**
357. Bažant, Z.P., and Xiang, Yuyin (1997). "Size effect in compression fracture: splitting crack band propagation." *J. of Engrg. Mechanics* ASCE 123 (2), 162–172.
358. Hong, A.P., Li, Y.-N., and Bažant, Z.P. (1997). "Theory of crack spacing in concrete pavements." *J. of Engrg. Mechanics* ASCE 123 (3), 267–275.
359. Bažant, Z.P., and Xiang, Y. (1997). "Postcritical imperfection-sensitive buckling and optimal bracing of large regular frames," *J. of Structural Engrg.* ASCE 123 (4), 513–522.
360. Bažant, Z.P. (1997). "Scaling of quasibrittle fracture: Asymptotic analysis." *Int. J. of Fracture* 83 (1), 19–40.
361. Bažant, Z.P. (1997). "Scaling of quasibrittle fracture: Hypotheses of invasive and lacunar fractality, their critique and Weibull connection." *Int. J. of Fracture* 83 (1), 41–65.
362. Bažant, Z.P., and Xiang, Y. (1997). "Crack growth and lifetime of concrete under long time loading." *J. of Engrg. Mechanics* ASCE 123 (4), 350–358.
363. Prat, P.C., and Bažant, Z.P. (1997). "Tangential stiffness of elastic materials with systems of growing or closing cracks." *J. of the Mechanics and Physics of Solids* 45 (4), 611–636; with Addendum and Errata, 45 (8), 1419–1420.
364. Bažant, Z.P., and Xiang, Y. (1997). "Inelastic buckling of concrete column in braced frame." *J. of Structural Engrg.* ASCE 123 (5), 634–642.
365. Bažant, Z.P., Hauggaard, A.B., Baweja, S., and Ulm, F.-J. (1997). "Microprestress-solidification theory for concrete creep. I. Aging and drying effects", *J. of Engrg. Mech.* ASCE 123 (11), 1188–1194.
366. Bažant, Z.P., Hauggaard, A.B., and Baweja, S. (1997). "Microprestress-solidification theory for concrete creep. II. Algorithm and verification", *J. of Engrg. Mech.* ASCE 123 (11), 1195–1201.
367. Carol, I., and Bažant, Z.P. (1997). "Damage and plasticity in microplane theory." *Int. J. of Solids and Structures* 34 (29), 3807–3835.561.
368. Xi, Yunping, and Bažant, Z.P. (1997). "Random growth of crack with R-curve: Markov process model." *Engrg. Fracture Mechanics* 57 (6), 593–608.
369. Bažant, Z.P. (1997). "Fracturing truss model: Size effect in shear failure of reinforced concrete." *J. of Engrg. Mechanics* ASCE 123 (12), 1276–1288.
370. Bažant, Z.P., and Li, Yuan-Neng (1997). "Cohesive crack with rate-dependent opening and viscoelasticity: I. mathematical model and scaling." *Int. J. of Fracture* 86 (3), 247–265.
371. Li, Yuan-Neng, and Bažant, Z.P. (1997). "Cohesive crack with rate-dependent opening and viscoelasticity: II. numerical algorithm, behavior and size effect." *Int. J. of Fracture* 86 (3), 267–288.
- 1998**
372. Li, Zhengzhi, and Bažant, Z.P. (1998). "Acoustic emissions in fracturing sea ice plate simulated by particle system." *J. of Engrg. Mechanics* ASCE 124 (1), 69–79.
373. Bažant, Z.P. (1998). "Easy-to-compute tensors with symmetric inverse approximating Hencky finite strain and its rate." *J. of Materials of Technology* ASME 120 (April), 131–136.
374. Baweja, S., Dvorak, G.J., and Bažant, Z.P. (1998). "Triaxial composite model for basic creep of concrete." *J. of Engrg. Mechanics* ASCE 124 (9), 959–966.
375. Bažant, Z.P., and Kim, Jang-Jay H. (1998). "Size effect in penetration of sea ice plate with part-through cracks. I. Theory." *J. of Engrg. Mechanics* ASCE 124



(12), 1310–1315; with discussions and closure in Vol. 126 (4), 438–442, 2000.

376. Bažant, Z.P., and Kim, Jang-Jay H. (1998). “Size effect in penetration of sea ice plate with part-through cracks. II. Results.” *J. of Engrg. Mechanics* ASCE 124 (12), 1316–1324; with discussions and closure in Vol. 126 (4), 438–442, 2000.

377. Acker, P., Bažant, Z.P., Chern, J.C., Huet, C., and Wittmann, F.H. (1998). *RILEM Recommendation on “Measurement of Time-Dependent Strains of Concrete* (prepared by Subcomm. 4 of RILEM Committee TC107-CSP). *Materials and Structures* (RILEM, Paris) 31 (No. 212, Oct.), 507–512.

### 1999

378. Xi, Yunping, and Bažant, Z.P. (1999). “Modeling chloride penetration in saturated concrete.” *J. of Materials in Civil Engineering* ASCE 11 (1), 58–67.

379. Ulm, F.-J., Coussy, O., and Bažant, Z.P. (1999). “The “Chunnel” fire. I. Chemoplastic softening in rapidly heated concrete.” *J. of Engrg. Mechanics* ASCE 125 (3), 272–283.

380. Bažant, Z.P., and Becq-Giraudon, E. (1999). “Effects of size and slenderness on ductility of fracturing structures.” *J. of Engrg. Mechanics* ASCE 125 (3), 331–339.

381. Bažant, Z.P., and Huet, C. (1999). “Thermodynamic functions for ageing viscoelasticity: integral form without internal variables.” *Int. J. of Solids and Structures* 36, 3993–4016.

382. Şener, S., Bažant, Z.P., and Becq-Giraudon, E. (1999). “Size effect on failure of bond splices of steel bars in concrete beams.” *J. of Structural Engrg.* 125 (6), 653–661.

383. Bažant, Z.P., Kim, J.-J.H., Kim, Daniel, I.M., Becq-Giraudon, E., and Zi, Goangseup (1999). “Size effect on compression strength of fiber composites failing by kink band propagation.” *Int. J. of Fracture* 95, 103–141 (special issue on *Fracture Scaling*, Z.P. Bažant and Y.D.S. Rajapakse, eds.).

384. Bažant, Z.P., and Vitek, J.L. (1999). “Compound size effect in composite beams with softening connectors. I. Energy approach.” *J. of Engrg. Mech.* ASCE 125 (11), 1308–1314.

385. Bažant, Z.P., and Vitek, J.L. (1999). “Compound size effect in composite beams with softening connectors. II. Differential equations and behavior.” *J. of Engrg. Mech.* ASCE 125 (11), 1315–1322.

386. Bažant, Z.P., Kim, J.-J.H., and Brocca, M. (1999). “Finite strain tube-squash test of concrete at high pressures and shear angles up to 70 degrees.” *ACI Materials Journal* 96 (5), 580–592.

387. Bažant, Z.P. (1999). “Criteria for rational prediction of creep and shrinkage of concrete”, *Revue Française de Génie Civil* 3 (3–4), 61–89; also in: *Creep and Shrinkage of Concrete*, ed. by F.-J. Ulm, M. Prat, J.-A. Calgaro and I. Carol, Hermès Science Publications, Paris 1999, 61–89 (reprinted with updates in ACI SP-194, 2000, see

P158).

### 2000

388. Bažant, Z.P., and Novák, D. (2000). “Probabilistic nonlocal theory for quasibrittle fracture initiation and size effect. I. Theory.” *J. of Engrg. Mech.* ASCE 126 (2), 166–174.

389. Bažant, Z.P., and Novák, D. (2000). “Probabilistic nonlocal theory for quasibrittle fracture initiation and size effect. II. Application.” *J. of Engrg. Mech.* ASCE 126 (2), 175–185.

390. Bažant, Z.P., Zi, G., and Meyer, C. (2000). “Fracture mechanics of ASR in concretes with waste glass particles of different sizes.” *J. of Engrg. Mechanics* ASCE 126 (3), 226–232.

391. Bažant, Z.P., and Steffens, A. (2000). “Mathematical model for kinetics of alkali-silica reaction in concrete.” *Cement and Concrete Research* 30 (3), 419–428 (disc. reply Vol. 31, 2001, 1111–1113).

392. Bažant, Z.P., and Novák, D. (2000). “Energetic-statistical size effect in quasibrittle failure at crack initiation.” *ACI Materials Journal* 97 (3), 381–392.

393. Bažant, Z.P., Caner, F.C., Carol, I., Adley, M.D., and Akers, S.A. (2000). “Microplane model M4 for concrete: I. Formulation with work-conjugate deviatoric stress.” *J. of Engrg. Mechanics* ASCE 126 (9), 944–953.

394. Caner, F.C., and Bažant, Z.P. (2000). “Microplane model M4 for concrete: II. Algorithm and Calibration.” *J. of Engrg. Mechanics* ASCE 126 (9), 954–961.

395. Bažant, Z.P., Caner, F.C., Adley, M.D., and Akers, S.A. (2000). “Fracturing rate effect and creep in microplane model for dynamics.” *J. of Engrg. Mechanics* ASCE 126 (9), 962–970.

396. Bažant, Z.P., Adley, M.D., Carol, I., Jirásek, M., Akers, S.A., Rohani, B., Cargile, J.D., and Caner, F.C. (2000). “Large-strain generalization of microplane model for concrete and application.” *J. of Engrg. Mechanics* ASCE 126 (9), 971–980.

### 2001

396a. Bažant, Z.P. (2001). “Prediction of concrete creep and shrinkage: Past, present, future.” *Nuclear Engrg. and Design* 203 (1), Jan., 27–38 (republication of S33, with updates).

397. Bažant, Z.P., and Novák, D. (2001). “Proposal for standard test of modulus of rupture of concrete with its size dependence.” *ACI Materials Journal* 98 (1), 79–87.

398. Carol, I., Jirásek, M., and Bažant, Z.P. (2001). “A thermodynamically consistent approach to microplane theory. Part I: Free energy and consistent microplane stresses.” *Int. J. of Solids and Structures* 38 (17), 2921–2931.

399. Planas, J., Bažant, Z.P., and Jirásek, M. (2001). “Reinterpretation of Karihaloo’s size effect analysis for notched quasibrittle structures.” *Intern. J. of Fracture* 111, 17–28.

400. Bažant, Z.P. (2001). “Scaling of failure of beams, frames and plates with softening hinges.” *Mechanica* (Kluwer Acad. Publ.) 36, 67–77, 2001 (special

issue honoring G. Maier).

401. Brocca, M., and Bažant, Z.P. (2001). “Microplane finite element analysis of tube-squash test of concrete with shear angles up to  $70^\circ$ ”, *Int. J. for Numerical Methods in Engrg.* 52, 1165–1188.

402. Brocca, M., and Bažant, Z.P. (2001). “Size effect in concrete columns: Finite element analysis with microplane model.” *J. of Structural Engineering ASCE* 127 (12), 1382–1390.

403. Brocca, M., Bažant, Z.P., and Daniel, I.M. (2001). “Microplane model for stiff foams and finite element analysis of sandwich failure by core indentation.” *Intern. J. of Solids and Structures* 38, 8111–8132.

404. Bažant, Z.P. (2001). “Why did the World Trade Center collapse?” *SIAM News* (Society for Industrial and Applied Mathematics) Vol. 34, No. 8 (October), pp. 1 and 3.

a) Bažant, Z.P. (2001). “Anatomie zániku dvojčat” (Anatomy of ruin of twin towers), *Věda a technika (Science and Technology)* [publ. by *Hospodářské noviny (Economic News)*] No. 186, p.1 (Sept. 25, 2001), Prague (abbreviated Czech translation of item 404).

b) Bažant, Z.P., and Zhou, Y. (2001). “Proč se zřítily věže World Trade Center? (Why did the towers of World Trade Center collapse?)”, *Stavitel* (Builder) (Prague) Vol. 9, No. 10 (October), 35 (expanded Czech translation of item 404).

c) Bažant, Z.P., and Zhou, Y. (2001). “Dlaczego runęły wieżowce World Trade Center?” (Why did the towers of World Trade Center fail?) *Polski Cement* (Warszawa) No. 4 (Sept.-Dec.), pp. 56–57 (expanded Polish translation of item 404).

405a. Bažant, Z.P., and Zhou, Y. (2001). “Why did the World Trade Center collapse?—Simple analysis.” *Building Research Journal* 49 (3), 135–146 (authorized modified republication of item 405, and major expansion of item 404).

b) Bažant, Z.P., and Zhou, Y. (2001). “Why did World Trade Center collapse?—Simple analysis.” *Archives of Applied Mechanics* (Springer, Berlin) 71, 802–806 (authorized abbreviated republication of item 405).

c) Bažant, Z.P., and Zhou, Y. (2001). “Why did World Trade Center collapse?—Simple analysis.” *Int. J. of Structural Stability and Dynamics* 1 (4), 603–615 (authorized abbreviated republication of item 405).

d) Bažant, Z.P., and Zhou, Y. (2001). “New York e World Trade Center: Analisi del crollo.” *Il Giornale dell’Ingegnere* No. 20/21, December 2001, pp. III–VI (authorized Italian translation of item 405).

e) Bažant, Z.P., and Zhou, Y. (2001). “Why did World Trade Center collapse?—Simple analysis.” *Studies and Researches* (Politecnico di Milano, Italy) 22, 229–242 (authorized abbreviated republication of item 405).

f) Bažant, Z.P., and Zhou, Y. (2001). “Γιατί κατέρρευσαν αι πύργοι του Παγκόσμιου Κέντρου Εμπορίου;—Μία απλή ανάλυση.” *ΤΕΧΝΙΚΑ ΘΕΜΑΤΑ* (Patras), Vol. 46, Dec., 36–44 (authorized Greek translation of item 405 by P.A. Kakavas).

g) Chinese translation of item 405 in *Advances in Me-*

*chanics* (Beijing) 32 (4), 613–624 (2002).

## 2002

405. Bažant, Z.P., and Zhou, Y. (2002). “Why did the World Trade Center collapse?—Simple analysis.” *J. of Engrg. Mechanics ASCE* 128 (No. 1), 2–6; with Addendum, March (No. 3), 369–370.

h) Bažant, Z.P., and Zhou, Y. (2002). “Pochemu razrushilsya Vsemirnyi Torgovyj Centr?—Uproshchenyi analiz.” *Budainictva (Stroitel’nost’, Construction, Minsk, No. 1–2, 180–199* (authorized Russian translation of item 405 by V.M. Ovsianko).

406. Caner, F.C., Bažant, Z.P., and Červenka, J. (2002). “Vertex effect in strain-softening concrete at rotating principal axes.” *J. of Engrg. Mechanics ASCE* 128 (1), 24–33.

407. Bažant, Z.P., and Frangopol, D.M. (2002). “Size effect hidden in excessive dead load factor.” *J. of Structural Engrg. ASCE* 128 (1), 80–86.

408. Bažant, Z.P. (2002). “Scaling of sea ice fracture—Part I: Vertical penetration.” *J. of Applied Mechanics ASME* 69 (Jan.), 11–18.

409. Bažant, Z.P. (2002). “Scaling of sea ice fracture—Part II: Horizontal load from moving ice.” *J. of Applied Mechanics ASME* 69 (Jan.), 19–24.

410. Bažant, Z.P. (2002). “Concrete fracture models: testing and practice.” *Engineering Fracture Mechanics* 69 (2), 165–206 (special issue on Fracture of Concrete and Rock, M. Elices, ed.).

411. Bažant, Z.P. (2002). “Scaling of dislocation-based strain-gradient plasticity.” *J. of the Mechanics and Physics of Solids* 50 (3), 435–443 (based on Theor. & Appl. Mech. Report No. 2000-12/C699s, Northwestern University 2000; see also Errata, Vol. 52, 2004, p. 975).

412. Bažant, Z.P., and Guo, Z. (2002). “Size effect on strength of floating sea ice under vertical line load.” *J. of Engrg. Mechanics* 128 (3), 254–263.

413. Bažant, Z.P., and Becq-Giraudon, E. (2002). “Statistical prediction of fracture parameters of concrete and implications for choice of testing standard.” *Cement and Concrete Research* 32 (4), 529–556.

414. Brocca, M., Brinson, L.C., and Bažant, Z.P. (2002). “Three-dimensional constitutive model for shape memory alloys based on microplane model.” *J. of the Mechanics and Physics of Solids* 50 (2002), 1051–1077.

415. Lin, F.-B., Yan, G.Y., Bažant, Z.P., and Ding, F. (2002). “Nonlocal strain-softening model of quasibrittle materials using boundary element method.” *Engrg. Analysis with Boundary Elements* 26, 417–424.

416. Caner, F.C., and Bažant, Z.P. (2002). “Lateral confinement needed to suppress softening of concrete in compression.” *J. of Engrg. Mechanics ASCE* 128 (12), 1304–1313.

417. Zi, G., and Bažant, Z.P. (2002). “Continuous relaxation spectrum for concrete creep and its incorporation into microplane model M4.” *J. of Engrg. Mech. ASCE* 128 (12) 1331–1336.

418. Bažant, Z.P., and Guo, Zaoyang (2002). “Size effect and asymptotic matching approximations in strain-gradient theories of micro-scale plasticity.” *Int. J. of*

*Solids and Structures* 39, 5633–5657 (special issue honoring J.D. Achenbach, ed. by Z.P. Bažant and J. Qu; see also Errata, Vol. 40 (2003), p. 6215).

419. Bažant, Z.P., Yu, Q., and Zi, G. (2002). “Choice of standard fracture test for concrete and its statistical evaluation.” *Int. J. of Fracture* 118 (4), Dec., 303–337.

### 2003

420. Bažant, Z.P., Kim, Jin-Keun and Jeon, Sang-Eun (2003). “Cohesive fracturing and stresses caused by hydration heat in massive concrete wall.” *J. of Engrg. Mech. ASCE* 129 (1), 21–30.

421. Bažant, Z.P., and Zi, G. (2003). “Microplane constitutive model for porous isotropic rock.” *Int. J. of Numerical and Analytical Methods in Geomechanics* 27, 25–47.

422. Bažant, Z.P. (2003). “Shear buckling of sandwich, fiber-composite and lattice columns, bearings and helical springs: paradox resolved.” *J. of Appl. Mech. ASME* 70 (Jan.), 75–83.

423. Bažant, Z.P., Zi, G. and McClung, D. (2003). “Size effect law and fracture mechanics of the triggering of dry snow slab avalanches.” *J. of Geophysical Research* 108 (B2), 2119–2129.

424. Sládek, J., Sládek, V., and Bažant, Z.P. (2003). “Non-local boundary integral formulation for softening damage.” *Int. J. for Numerical Methods in Engrg.* 57, 103–116.

425. Bažant, Z.P. (2003). “Asymptotic matching analysis of scaling of structural failure due to softening hinges. I. Theory.” *J. of Engrg. Mech. ASCE* 129 (6), 641–650.

426. Bažant, Z.P. (2003). “Asymptotic matching analysis of scaling of structural failure due to softening hinges. II. Implications.” *J. of Engrg. Mech. ASCE* 129 (6), 651–654.

427. Zi, G., and Bažant, Z.P. (2003). “Eigenvalue method for computing size effect of cohesive cracks with residual stress, with application to kink bands in composites.” *Int. J. of Engrg. Science* 41 (13–14), 1519–1534 (special issue honoring K. Willam, ed. by Z.P. Bažant, I. Carol and P. Steinmann).

428. Bažant, Z.P., and Zi, G. (2003). “Asymptotic stress intensity factor profiles for smeared-tip method for cohesive fracture.” *Int. J. of Fracture* 119 (2), 145–159.

429. Bažant, Z.P., and Zi, G. (2003). “Decontamination of radionuclides from concrete by microwave heating. I. Theory.” *ASCE J. of Engrg. Mech.* 129 (7), 777–784.

430. Bažant, Z.P., and Zi, G. (2003). “Decontamination of radionuclides from concrete by microwave heating. II. Computations.” *ASCE J. of Engrg. Mech.* 129 (7), 785–792.

431. Cusatis, G., Bažant, Z.P., and Cedolin, L. (2003). “Confinement-shear lattice model for concrete damage in tension and compression: I. Theory.” *J. of Engrg. Mechanics ASCE* 129 (12), 1439–1448.

432. Cusatis, G., Bažant, Z.P., and Cedolin, L. (2003). “Confinement-shear lattice model for concrete damage in tension and compression: II. Computation and validation.” *J. of Engrg. Mechanics ASCE* 129 (12), 1449–1458.

433. Bažant, Z.P., Zhou, Y., Zi, G., and Daniel, I.M. (2003). “Size effect and asymptotic matching analysis of fracture of closed-cell polymeric foam.” *Int. J. of Solids and Structures* 40, 7197–7217.

### 2004

434. Bažant, Z.P., Zhou, Y., Novák, D., and Daniel, I.M. (2004). “Size effect on flexural strength of fiber-composite laminate.” *J. of Engrg. Materials and Technology ASME* 126 (Jan.), 29–37.

435. Carol, I. (2004), Jirásek, M., and Bažant, Z.P.. “A framework for microplane models at large strain, with application to hyperelasticity.” *Int. J. of Solids and Structures* 41, 511–557.

436. Bažant, Z.P., Cusatis, G., and Cedolin, L. (2004). “Temperature effect on concrete creep modeled by microprestressing-solidification theory.” *J. of Engrg. Mechanics ASCE* 130 (6) 691–699.

437. Bažant, Z.P., and Di Luzio, G. (2004). “Nonlocal microplane model with strain-softening yield limits.” *Int. J. of Solids and Structures* 41 (24–25), 7209–7240.

438. Bažant, Z.P. (2004). “Scaling theory for quasibrittle structural failure.” *Proc., National Academy of Sciences* 101 (37), 13400–13407 (inaugural article).

439. Bažant, Z.P. (2004). “Probability distribution of energetic-statistical size effect in quasibrittle fracture.” *Probabilistic Engineering Mechanics* 19 (4), 307–319.

440. Bažant, Z.P., and Beghini, A. (2004). “Sandwich buckling formulas and applicability of standard computational algorithm for finite strain.” *Composites: Part B* 35, 573–581.

441. Guo, Z., and Bažant, Z.P. (2004). “Theoretical modeling and scaling.” Sec. 4, pp. 584–592 and 596–600 in chapter on “Micro- and nanomechanics” by B.C. Prorok, Y. Zhu, H.D. Espinosa, Z. Guo, Z.P. Bažant, Y. Zhao and B.I. Yakobson, Vol. 5, pp. 555–600 in *Encyclopedia of Nanoscience and Nanotechnology*, H.S. Nalva, ed., American Scientific Publishers, Stevenson Ranch, CA.

441a. Bažant, Z.P., and Yu, Q. (2004). “Size effect in concrete specimens and structures: New problems and progress.” *Acta Polytechnica* 44 (5–6), 7–15 (authorized republication, with updates, from FraMCoS-5 proceedings, P185.pdf).

### 2005

442. Bažant, Z.P., and Yavari, A. (2005). “Is the cause of size effect on structural strength fractal or energetic-statistical?” *Engrg. Fracture Mechanics* 72, 1–31.

443. Bažant, Z.P., and Caner, F.C. (2005). “Microplane model M5 with kinematic and static constraints for concrete fracture and anelasticity. I. Theory” *J. of Engrg. Mech. ASCE* 131 (1), 31–40.

444. Bažant, Z.P., and Caner, F.C. (2005). “Microplane model M5 with kinematic and static constraints for concrete fracture and anelasticity. II. Computation.” *J. of Engrg. Mech. ASCE* 131 (1), 41–47.

445. Červenka, J., Bažant, Z.P., and Wierer, M. (2005). “Equivalent localization element for crack band approach

to mesh-sensitivity in microplane model.” *Int. J. for Numerical Methods in Engrg.* 62 (5), 700–726.

446. Bažant, Z.P., and Beghini, A. (2005). “Which formulation allows using a constant shear modulus for small strain-buckling of soft-core sandwich structures?” *J. of Applied Mechanics ASME* 72 (Sept.), 785–787.

447. Di Luzio, G., and Bažant, Z.P. (2005). “Spectral analysis of localization in nonlocal and over-nonlocal materials with softening plasticity or damage.” *Int. J. of Solids and Structures* 42, 6071–6100.

448. Bažant, Z.P., Guo, Z., Espinosa, H., Zhu, Y. and Peng, B. (2005). “Epitaxially influenced boundary layer model for size effect in thin metallic films.” *J. of Applied Physics* 97, 073506-1 – 073506-13.

449. Bažant, Z.P., and Yu, Q. (2005). “Designing against size effect on shear strength of reinforced concrete beams without stirrups: I. Formulation” *J. of Structural Engineering ASCE* 131 (12), 1877–1885.

450. Bažant, Z.P., and Yu, Q. (2005). “Designing against size effect on shear strength of reinforced concrete beams without stirrups: II. Verification and calibration” *J. of Structural Engineering ASCE* 131 (12), 1885–1897.

## 2006

451. Bažant, Z.P., and Yu, Q. (2006), “Reliability, brittleness and fringe formulas in concrete design codes”, *J. of Structural Engrg. ASCE* 132 (1), 3–12.

452. Křístek, V., Bažant, Z.P., Zich, M., and Koutková (2006). “Box girder deflections: Why is the initial trend deceptive?” *ACI Concrete International* 28 (1), 55–63.

453. Bažant, Z.P., and Beghini, A. (2006). “Stability and finite strain of homogenized structures soft in shear: sandwich or fiber composites, and layered bodies.” *Int. J. of Solids and Structures* 43, 1571–1593.

454. Bažant, Z.P. (2006). “Rozměrový efekt, jeho podíl na případech katastrofického zhroutení konstrukcí a důsledky pro návrhové normy (Size effect, its role in structural catastrophes and consequences for design codes), *Beton* (Prague) 6, No. 2, 42–49, and No. 3, p. 48 (in Czech).

455. Bažant, Z.P., and Pang, S.-D. (2006). “Mechanics based statistics of failure risk of quasibrittle structures and size effect on safety factors.” *Proc. of the National Academy of Sciences* 103(25), 9434–9439.

456. Ferretti, D., and Bažant, Z.P. (2006). “Stability of ancient masonry towers: Moisture diffusion, carbonation and size effect.” *Cement and Concrete Research* 36 (7), 1379–1388.

457. Ferretti, D., and Bažant, Z.P. (2006). “Stability of ancient masonry towers: Stress redistribution due to drying, carbonation and creep.” *Cement and Concrete Research* 36 (7), 1389–1398.

458. Beghini, A., Bažant, Z.P., Waas, A.M., and Basu, S. (2006). “Postcritical imperfection sensitivity of sandwich or homogenized orthotropic columns soft in shear and in transverse deformation.” *Int. J. of Solids and Structures* 43, 5501–5524.

459. Bažant, Z.P., Zhou, Y., Daniel, I.M., Caner, F.C., and Yu, Q. (2006). “Size effect on strength of laminate-

foam sandwich plates”, *J. of Engrg. Materials and Technology ASME* 128 (3), 366–374.

460. Cusatis, G., Bažant, Z.P., and Cedolin, L. (2006). “Confinement-shear lattice CSL model for fracture propagation in concrete.” *Computer Methods in Applied Mechanics and Engrg.*, 195, 7154–7171.

461. Bažant, Z.P., and Yu, Q. (2006). “Size effect on strength of quasibrittle structures with reentrant corners symmetrically loaded in tension.” *J. of Engrg. Mechanics ASCE* 129 (11), 1168–1176.

462. Bayldon, J.M., Bažant, Z.P., Daniel, I.M., and Yu, Q. (2006). “Size effect on compressive strength of sandwich panels with fracture of woven laminate facesheet.” *J. of Engrg. Materials and Technology* Vol. 128 (April), 169–174.

## 2007

463. Beghini, A., Bažant, Z.P., Zhou, Y., Gouirand, O., and Caner, F.C. (2007). “Microplane model M5f for multiaxial behavior and fracture of fiber reinforced concrete.” *J. of Engrg. Mechanics ASCE* 133 (1), 66–75.

464. Bažant, Z.P., and Pang, S.-D. (2007). “Activation energy based extreme value statistics and size effect in brittle and quasibrittle fracture”. *J. of the Mechanics and Physics of Solids* 55, 91–134.

465. Bažant, Z.P., Vořechovský, M., and Novák, D. (2007). “Asymptotic prediction of energetic-statistical size effect from deterministic finite element solutions.” *J. of Engrg. Mechanics ASCE* 128, 153–162.

466. Bažant, Z.P., and Verdure, M. (2007). “Mechanics of progressive collapse: Learning from World Trade Center and building demolitions.” *J. of Engrg. Mechanics ASCE* 133 (3), 308–319.

467. Guo, Z., and Bažant, Z.P. (2006). “Size effect on buckling strength of eccentrically compressed column with fixed or propagating transverse crack.” *Int. J. of Fracture* 142, 151–162.

468. Bažant, Z.P., Yu, Q., Gerstle, W., Hanson, J., and Ju, J. W. (2007). “Justification of ACI-446 proposal for updating ACI code provisions for shear design of reinforced concrete beams.” *ACI Structural Journal* 104 (5), Sept.-Oct., 601–610 (with Errata—title correction, Nov.-Dec., p. 767).

469. Bažant, Z.P., and Yavari, A. (2007). “Response to A. Carpinteri, B. Chiaia, P. Cornetti and S. Puzzi’s comments on “Is the cause of size effect on structural strength fractal or energetic-statistical?” *Engrg. Fracture Mechanics* 74, 2897–2910.

470. Bažant, Z.P., Vořechovský, M., and Novák, D. (2007). “Energetic-statistical size effect simulated by SFEM with stratified sampling and crack band model.” *Int. J. for Numerical Methods in Engrg.* 71, 1297–1320.

471. Caner, F.H., Guo, Z., Moran, B., Bažant, Z.P., and Carol, I. (2007). “Hyperelastic anisotropic microplane constitutive model for annulus fibrosus.” *J. of Biomechanical Engineering ASME* 129 (Oct.), 632–641.

472. Bažant, Z.P., and Grassl, P. (2007). “Size effect of cohesive delamination fracture triggered by sandwich skin wrinkling.” *J. of Applied Mechanics ASME* 74 (6), 1134–1141.

473. Bažant, Z.P., and Yu, Q. (2007). “Consequences of ignoring or mis-judging the size effect in concrete design codes and practice”. *Concrete Technology* 1 (1), 29–55; also printed in *Proc., TCI 2007 Concrete Technology Conference*, Taiwan Concrete Institute, Nov. 2007, Taipei, 1–24 (slightly abbreviated version published, with authorization, in *Proc., 3rd Structural Engineers World Congress*, Bangalore, 2007—see P203).

473a. Bažant, Z.P. (2010). “Can multiscale-multiphysics methods predict softening damage and structural failure.” *Mechanics*, Newsletter of Am. Academy of Mechanics 36 (5-6), 5–12, 2007 (republished with permission as 498a).

## 2008

474. Cusatis, G., Beghini, H., and Bažant, Z.P. (2008). “Spectral stiffness microplane model for quasi-brittle composite laminates: I. Theory.” *J. of Applied Mechanics ASME* 75 (1), pp. 021009-1–021009-9.

475. Cusatis, G., Beghini, H., and Bažant, Z.P. (2008). “Spectral stiffness microplane model for quasibrittle composite laminates: II. Calibration and validation.” *J. of Applied Mechanics ASME* 75 (1), pp. 0210210-1–021010-6.

475a. Bažant, Z.P. (2008). “Mechanics based statistical prediction of structure size and geometry effects on safety factors for composites and other quasibrittle materials.” *Theoretical and Applied Mechanics* 35, No. 1–3, pp. 53–71, Serbian Society of Mechanics, Belgrade. A volume in honor of D. Krajčinović (authorized republication, with modifications, of P202).

476. Bažant, Z.P., Le, J.-L., Greening, F.R., and Benson, D.B. (2008). “What did and did not cause collapse of World Trade Center twin towers in New York?” *J. of Engrg. Mechanics ASCE* 134 (10) 892–906.

477. Bažant, Z.P., and Yu, Qiang (2008). “Minimizing statistical bias to identify size effect from beam shear database.” *ACI Structural Journal* 105 (6, Nov.-Dec.), 685–691.

478. Bažant, Z.P., and Li, Guang-Hua (2008). “Unbiased statistical comparison of creep and shrinkage prediction models”. *ACI Materials Journal* 106 (6, Nov.-Dec.), 610–621.

479. Bažant, Z.P., and Li, Guang-Hua (2008). “Comprehensive database on concrete creep and shrinkage.” *ACI Materials Journal* 106 (6, Nov.-Dec.), 635–638.

## 2009

480. Bažant, Z.P. (2008). “Fracture analysis and size effect in sea ice.” *The Mechanics of Solids: History and Evolution* (A Festschrift in Honor of Arnold Kerr), M.H. Santare and M.H. Chajes, eds., University of Delaware Press, Newark, Delaware, pp. 151–170.

481. Bažant, Z.P., and Yu, Qiang (2009). “Does strength test satisfying code requirement for nominal strength justify ignoring size effect in shear?” *ACI Materials Journal* 106 (1, Jan.-Feb.), 14–19.

482. Bažant, Z.P., and Yu, Q. (2009). “Universal size effect law and effect of crack depth on quasi-brittle structure strength.” *J. of Engrg. Mechanics ASCE* 135 (2),

Feb., 78–84.

483. Grassl, P., and Bažant, Z.P. (2009). “Random lattice-particle simulation of statistical size effect in quasi-brittle structures failing at crack initiation.” *J. of Engrg. Mech. ASCE* 135 (2), Feb., 85–92.

484. Pang, S.-D., Bažant, Z.P., and Le, J.-L. (2009). “Statistics of strength of ceramics: finite weakest-link model and necessity of zero threshold.” *Int. J. of Fracture* 154, 131-145 (Special Issue edited by J. van Mier).

485. Le, Jia-Liang, and Bažant, Z.P. (2009). “Strength distribution of dental restorative ceramics: Finite weakest link model with zero threshold.” *Dental Materials* 25, 641–648.

486. Bažant, Z.P., Le, J.-L., and Bazant, M.Z. (2009), “Scaling of strength and lifetime probability distributions of quasibrittle structures based on atomistic fracture mechanics”, *Proc. of the National Academy of Sciences* 106 (28), 11484–11489.

487. Caner, F.C., and Bažant, Z.P. (2009), “Size effect on strength of laminate-foam sandwich plates: Finite element analysis with interface fracture,” *Composites, Part B: Engineering* 40(5), 337–348.

488. Bažant, Z.P., and Le, Jia-Liang (2009). “Nanomechanics based modeling of lifetime distribution of quasibrittle structures”. *Engineering Failure Analysis* 16, 2521-2529.

489. Le, Jia-Liang, Bažant, Z.P., and Bazant, M.Z. (2009). “Subcritical crack growth law and its consequences for lifetime statistics and size effect of quasibrittle structures”. *Journal of Physics D: Applied Physics* 42, 214008 (8pp).

490. Haldar, A., and Bažant, Z.P. (2009). “Recent Advances in Statistical Analysis of Concrete and Concrete Structures with Implications for Design,” *Int. J. of Engrg. under Uncertainty: Hazards, Assessment, and Mitigation* 1, (1-2),81-89.

491. Le, Jia-Liang, Bažant, Z.P., and Bazant, M.Z. (2009). “Lifetime of high- $k$  gate dielectrics and analogy with strength of quasi-brittle structures.” *J. of Applied Physics* 106, 104119, 1–8.

492. Gdoutos, E.E., and Bažant, Z.P. (2009). “Size effect of fracture of composite and sandwich structures.” in *Major Accomplishments in Composite Materials and Sandwich Structures*, I.M. Daniel, E.E. Gdoutos, Y.D.S. Rajapakse, eds., Springer Verlag, Heidelberg–New York, 305–338.

## 2010

493. Yu, Q., Bažant, Z.P., Bayldon, J., Le, J.-L., Caner, F.C., Ng, W.H., Waas, A.M., and Daniel, I.M. (2010). “Scaling of Strength of Metal-Composite Joints: I. Experimental Investigation.” *ASME J. of Applied Mechanics* 77 (Jan.), pp. 011011-1–011011-8.

494. Le, J.-L., and Bažant, Z.P. (2010). “Scaling of strength of metal-composite joints: II. Interface fracture analysis.” *ASME J. of Applied Mechanics* 77 (Jan.), pp. 011012-1–011012-7.

495. Šmilauer, V., and Bažant, Z.P. (2010). “Identification of viscoelastic C-S-H behavior in mature cement

pastest by FFT-based homogenization method.” *Cement and Concrete Research* 40, 197-207.

496. Yu, Q., Le, J.-L., Hoover, C.G., and Bažant, Z.P. (2010). “Problems with Hu-Duan boundary effect model and its comparison to size-shape effect law for quasibrittle fracture”. *ASCE J. of Engrg. Mechanics* 136 (1),40–50.

497. Ji, Wooseok, Waas, A.M., and Bažant, Z.P. (2010). “Errors Caused by Non-Work-Conjugate Stress and Strain Measures and Necessary Corrections in Finite Element Programs.” *ASME J. of Applied Mechanics* 77 (July), 044504-1–044504-5.

498. Bažant, Z.P., Yu, Q., Li, G.-H., Klein, G.J., and Krístek, V. (2010), “Excessive deflections of record-span prestressed box girder: Lessons learned from the collapse of the Koror-Babeldaob Bridge in Palau.” *ACI Concrete International* 32 (6), June, 44-52.

498a. Bažant, Z.P. (2010). “Can multiscale-multiphysics methods predict softening damage and structural failure.” *Inter. J. for Multiscale Computational Engineering* 8 (1), 61–67 (Special issue honoring Prof. J. Šejnoha of CTU Prague, J. Šejnoha, ed.; authorized republication from *Mechanics* (Newsletter of Am. Academy of Mechanics) 36 (5-6), 5–12, 2007).

## 2011

499. Bažant, Z.P., and Le, Jia-Liang (2011). “Why the observed motion history of World Trade Center towers is smooth.” *ASCE J. of Engrg. Mechanics* 137 (1), 82–84.

500. Le, Jia-Liang, Bažant, Z.P., and Bazant, M.Z. (2011). “Unified nano-mechanics based probabilistic theory of quasibrittle and brittle structures: I. Strength, static crack growth, lifetime and scaling.” *J. of the Mechanics and Physics of Solids* 59, 1291–1321.

501. Le, Jia-Liang and Bažant, Z.P. (2011). “Unified nano-mechanics based probabilistic theory of quasibrittle and brittle structures: II. Fatigue crack growth, lifetime and scaling.” *J. of the Mechanics and Physics of Solids* 59, 1322–1337.

502. Yu, Qiang, Bažant, Z.P. (2011). “Can stirrups suppress size effect on shear strength of RC beams?” *ASCE J. of Engrg. Mech.* 137 (5), 607–617.

503. Šmilauer, V., Hoover, C.G., Bažant, Z.P., Caner, F.C., Waas, K.W., and Shahwan, K. (2011). “Multiscale simulation of fracture of braided composites via repetitive unit cells”. *Engineering Fracture Mechanics* 78 (6), April, pp. 901-918.

504. Bažant, Z.P., Hubler, M.H., and Yu, Qiang (2011). ”Excessive creep deflections: An awakening.” *ACI Concrete International* 33 (8), 44–46.

505. Bažant, Z.P., Yu, Qiang (2011). “Size effect testing of cohesive fracture parameters and non-uniqueness of work-of-fracture method.” *ASCE J. of Engrg. Mech.* 137 (8), 580-588.

506. Caner, F., Bažant, Z.P., Hoover, C., Waas, A., and Shahwan, K. (2011). “Microplane model for fracturing damage of triaxially braided fiber-polymer composites”, *ASME J. of Engrg. Materials and Technology* 133 (April), pp. 021024-1–021024-12.

507. Bažant, Z.P., Hubler, M.H., and Yu, Qiang (2011). “Pervasiveness of excessive segmental bridge deflections:

A wake-up call for creep.” *ACI Structural Journal* 108 (6, Nov.-Dec.), 766-774.

## 2012

508. Le, Jia-Liang, and Bažant Z.P. (2012). “Scaling of Static Fracture of Quasi-Brittle Structures: Strength, Lifetime, and Fracture Kinetics.” *ASME J. of Applied Mechanics* 79, 031006-1–031006-10 (Special J.R. Rice 70<sup>th</sup> Birthday Issue).

509. Bažant, Z.P., and Le, Jia-Liang (2012). ”Size effect on strength and lifetime probability distributions of quasibrittle structures”. *Sādhanā* (Indian Academy of Sciences) 37 (Feb.), Part 1, 1731 (authorized updated republication of P210).

510. Bažant, Z.P., Yu, Qiang, and Li, Guang-Hua (2012). “Excessive long-time deflections of prestressed box girders: I. Record-span bridge in Palau and other paradigms.” *ASCE J. of Structural Engrg.* 138 (6), 676–686.

511. Bažant, Z.P., Yu, Qiang, and Li, Guang-Hua (2012). “Excessive long-time deflections of collapsed prestressed box girders: II. Numerical analysis and lessons learned.” *ASCE J. of Structural Engrg.* 138 (6), 687–696.

512. Bažant, Z.P., and Bazant, M.Z. (2012). “Theory of sorption hysteresis in nanoporous solids: Part I. Snap-through instabilities.” *J. of the Mechanics and Physics of Solids* 60, 1644-1659.

513. Bazant, M.Z., and Bažant, Z.P. (2012). “Theory of sorption hysteresis in nanoporous solids: Part II. Molecular condensation.” *J. of the Mechanics and Physics of Solids* 60, 1660-1675.

514. Le, Jia-Liang, Eliáš, J., and Bažant, Z.P. (2012). “Computation of probability distribution of strength of quasibrittle structures failing at macrocrack initiation.” *ASCE J. of Engrg. Mechanics* 138 (7), 888–899.

515. Yu, Qiang, Bažant, Z.P., and Wendner, R. (2012). “Improved algorithm for efficient and realistic creep analysis of large creep-sensitive concrete structures.” *ACI Structural Journal* 109 (5), 665–676.

516. Bažant, Z.P., Yu, Q., Hubler, M., Krístek, V., and Bittnar, Z. (2012). “Wake-up call for creep, myth about size effect and black holes in safety: What to improve in *fib* model code draft.” in *Befestigungstechnik–Bewehrungstechnik* (in honor of Rolf Eligehausen 70th birthday), *ibidem*-Verlag, Stuttgart, W. Fuchs and J. Hofmann, eds., pp. 357-379, ISBN 978-87158-26-7 (authorized republication of proceedings paper P216).

517. Bažant, Z.P., Gattu, M., and Vorel, J. (2012). “Work conjugacy error in commercial finite-element codes: its magnitude and how to compensate for it.” *Proc. of Royal Society A* 468, 3047–3058.

518. Bažant, Z.P., Hubler, M.H. and Jirásek, M. (2012). “Improved estimation of long-term relaxation function from compliance function of aging concrete.” *ASCE J. of Engrg. Mech.* 139 (2), 146–152.

## 2013

519. Caner, F.C., Bažant, Z.P., and Wendner, R. (2013). “Microplane model M7f for fiber reinforced concrete.” *Engrg. Fracture Mechanics* 105, 41–57.

520. Vorel, J., Bažant, Z.P. and Gattu, M. (2013). “Elastic soft-core sandwich plates: Critical loads and energy errors in commercial codes due to choice of objective stress rate.” *ASME J. of Applied Mechanics* 80 (July), 041034-1–041034-10.
521. Bažant, Z.P., and Yu, Q. (2013). “Relaxation of prestressing steel at varying strain and temperature: Viscoplastic constitutive relation.” *ASCE J. of Engrg. Mechanics* 139 (7), 814–823.
522. Ji, Wooseok, Waas, A.M., and Bažant, Z.P. (2013). “On the importance of work-conjugacy and objective stress rates in finite deformation incremental finite element analysis.” *Trans. ASME, J. of Applied Mechanics* 80, 041024-1–041034-9.
523. Yu, Qiang, Bažant, Z.P., and Le, Jia-Liang (2013). “Scaling of strength of metal composite joints—Part III: Numerical Simulation.” *ASME J. of Applied Mechanics* 80 (5), 054503-1 – 054503-4.
524. Hoover, C.G., Bažant, Z.P., Vorel, J., Wendner, R., and Hubler, M.H. (2013). “Comprehensive concrete fracture tests: Description and results.” *Engrg. Fracture Mechanics* 114, 92–103.
525. Hoover, C.G., and Bažant, Z.P. (2013). “Comprehensive concrete fracture tests: Size effects of types 1 & 2, crack length effect and postpeak.” *Engrg. Fracture Mechanics* 110, 281–289.
526. Bažant, Z.P., Kim, K.-T., and Yu, Q. (2013). “Non-uniqueness of cohesive-crack stress-separation law of human and bovine bones and remedy by size effect tests.” *Int. J. of Fracture* 181, 67-81.
527. Caner, F.C., and Bažant, Z.P. (2013). “Microplane model M7 for plain concrete: I. formulation.” *ASCE J. of Engrg. Mechanics* 139 (12), Dec., 1714–1723.
528. Caner, F.C., and Bažant, Z.P. (2013). “Microplane model M7 for plain concrete: II. calibration and verification.” *ASCE J. of Engrg. Mechanics* 139 (12), Dec., 1724–1735.
529. Bažant, Z.P., and Caner, F.C. (2013). “Comminution of solids caused by kinetic energy of high shear strain rate, with implications for impact, shock and shale fracturing.” *Proc., National Academy of Sciences* 110 (48), 19291–19294.
- 2014**
530. Le, Jia-Liang, and Bažant, Z.P. (2014). “Finite weakest-link model of lifetime distribution of quasibrittle structures under fatigue loading.” *Mathematics and Mechanics of Solids* 19(1), 56–70 (issue honoring G.I.Barenblatt).
531. Bažant, Z.P., and Vorel, J. (2014). “Energy-conservation error due to use of Green-Naghdi objective stress rate in commercial finite-element codes and its compensation.” *ASME J. of Applied Mechanics* 81 (Feb.), pp. 021008-1 – 121008-5.
532. Salviato, M., and Bažant, Z.P. (2014). “The asymptotic stochastic strength of bundles of elements exhibiting general stress-strain laws.” *Probabilistic Engineering Mechanics* 36, 1–7.
533. Hoover, C.G., and Bažant, Z.P. (2014). “Universal size-shape effect law based on comprehensive concrete fracture tests.” *ASCE J. of Engrg. Mechanics* 140 (3), 473–479.
534. Hoover, C.G., and Bažant, Z.P. (2014). “Comparison of the Hu-Duan boundary effect model to size-shape effect law for quasi-brittle fracture based on new comprehensive fracture tests.” *ASCE J. of Engrg. Mechanics* 140 (3), 480–486.
535. Zi, Goangseup, Kim, Jihwan, and Bažant, Z.P. (2014). “Size effect on biaxial flexural strength of concrete.” *ACI Materials Journal* 111 (No. 1, January), 1–8.
536. Kirane, K., Bažant, Z.P., and Zi, Goangseup (2014). “Fracture and size effect on strength of plain concrete disks under biaxial flexure analyzed by microplane model M7.” *ASCE J. of Engrg. Mechanics* 140 (3), 604–613.
537. Bažant, Z.P., and Hubler, M.H. (2014). “Theory of cyclic creep of concrete based on Paris law for fatigue growth of subcritical microcracks.” *J. of the Mechanics and Physics of Solids* 63, 187–200.
538. Hoover, C.G., and Bažant, Z.P. (2014). “Cohesive crack, size effect, crack band and work-of-fracture models compared to comprehensive concrete fracture tests.” *Int. J. of Fracture* 187 (1), pp. 133-143.
539. Akono, A.-T., Ulm, F.-J., and Bažant, Z.P. (2014). “Discussion: Strength-to-fracture scaling in scratching.” *Engineering Fracture Mechanics* 119, 21–28.
540. Bažant, Z.P., and Caner, F.C. (2014). “Impact comminution of solids due to local kinetic energy of high shear strain rate: I. Continuum theory and turbulence analogy.” *J. of the Mechanics and Physics of Solids* 64, 223–235 (with Corrigendum, Vol. 67 (2014), p. 14).
541. Caner, F.C. and Bažant, Z.P. (2014). “Impact comminution of solids due to local kinetic energy of high shear strain rate: II. Microplane model and verification.” *J. of the Mechanics and Physics of Solids* 64, 236–248.
542. Salviato, M., Kirane, K., and Bažant, Z.P. (2014). “Statistical distribution and size effect of residual strength after a period of constant load.” *J. of the Mechanics and Physics of Solids* 64, 440–454.
543. Vorel, J., and Bažant, Z.P. (2014). “Review of energy conservation errors in finite element softwares caused by using energy-inconsistent objective stress rates.” *Advances in Engrg. Software* 72, 3–7 (special issue honoring Prof. Zdeněk Bittnar at his 70<sup>th</sup> birthday).
544. Kim, Kyungtae, Bažant, Z.P. (2014). “Creep design aid: open-source website program for concrete creep and shrinkage prediction.” *ACI Materials Journal* 111 (4), 423–432.
545. Bažant, Z.P., Salviato, M., Chau, Viet T., Viswanathan, H. and Zubelewicz, A. (2014). “Why fracking works.” *ASME J. of Applied Mechanics* 81 (Oct.), 101010-1—101010-10.
546. Vorel, J., and Bažant, Z.P. (2014). “Size effect in flexure of prestressed concrete beams failing by compression softening.” *ASCE J. of Structural Engrg.* 140 (10), pp. 04014068-1–04014068.
547. Kirane, K., and Bažant, Z.P. (2014). “Microplane damage model for fatigue of quasibrittle materials: Sub-

critical crack growth, lifetime and residual strength.” *International Journal of Fatigue* 70, 93–105.

548. Chen, Xin, Bažant, Z.P. (2014). “Microplane damage model for jointed rock masses”. *Int. J. of Num. and Anal. Methods in Geomechanics* 38, 1431–1452.

#### 2015

549. RILEM Technical Committee TC-242-MDC (Z.P. Bažant, chair) (2015). “Model B4 for creep, drying shrinkage and autogenous shrinkage of normal and high-strength concretes with multi-decade applicability (RILEM draft recommendation: TC-242-MDC multi-decade creep and shrinkage of concrete: material model and structural analysis). *Materials and Structures* 48 (4), 753–750

550. Wendner, R., Hubler, M.H., and Bažant, Z.P. (2015). “Optimization method, choice of form and uncertainty quantification of model B4 using laboratory and 23 multi-decade bridge databases. *Materials and Structures* 48 (4), 771–756.

551. Hubler, M.H., Wendner, R., and Bažant, Z.P. (2015). “Statistical justification of model B4 for drying and autogenous shrinkage of concrete and comparisons to other models. *Materials and Structures* 48 (4), 797–814.

552. Wendner, R., Hubler, M.H., and Bažant, Z.P. (2015). “Statistical justification of model B4 for multi-decade concrete creep using laboratory and bridge databases and comparisons to other models. *Materials and Structures* 48 (4), 815–833.

553. Bažant, Z.P., and Su, Yewang (2015). “Impact comminution of solids due to progressive crack growth driven by kinetic energy of high-rate shear.” *ASME J. of Applied Mechanics* 82 (March), pp. 031007-1–031007-5.

554. Eliáš, J., Vořechovský, Skoček, J., and Bažant, Z.P. (2015). “Stochastic discrete meso-scale simulations of concrete fracture: Comparison to experimental data”, *ASCE J. of Engineering Fracture Mechanics* 135 (1), 1–16.

555. Su, Yewang, Bažant, Z.P., Zhao, Youxuan, Salviato, M., and Kirane, K. (2015). “Viscous energy dissipation of kinetic energy of particles comminuted by high-rate shearing in projectile penetration, with potential ramification to gas shale.” *Int. J. of Fracture* 193 (1), 77–85.

556. Hubler, M.H., Wendner, R., and Bažant, Z.P. (2015). “Comprehensive database for concrete creep and shrinkage: Analysis and recommendations for testing and recording.” *ACI Materials Journal* 112 (4), 547–558.

557. Kirane, K., and Bažant, Z.P. (2015). “Size effect in Paris law for quasibrittle materials analyzed by the microplane constitutive model M7.” *Mechanics Research Communications* 68, 60–64 (special issue honoring B.A. Boley).

558. Bažant, Z.P., and Dönmez, A. (2015). “Extrapolation of short-time drying shrinkage tests based on measured diffusion size effect: concept and reality.” *Materials and Structures* (RILEM, Paris) 49(1), 411–420.

559. Wendner, R., Vorel, J., Smith, Jovanca, Hoover, C.G., Bažant, Z.P., Cusatis, G. (2015). “Characterization of concrete failure behavior: a comprehensive experimen-

tal database for the calibration and validation of concrete models.” *Materials and Structures* (RILEM, Paris) 48, 3603–3626.

560. Vandamme, M., Bažant, Z.P. and Keten, S. (2015). “Creep of lubricated layered nano-porous solids and application to cementitious materials.” *ASCE J. of Nanomechanics and Micromechanics* 5(4), pp. 04015002-1–04015002-8

561. Kirane, K., Su, Yewang, Bažant, Z.P. (2015). “Strain-rate dependent microplane model for high-rate comminution of concrete under impact based on kinetic energy release theory.” *Proc. Royal Soc. A* 471 (Oct.), paper 20150535, pp. 1–8; DOI: 10.1098/rspa.2015.0535.

#### 2016

562. Kirane, K., and Bažant, Z.P. (2016). “Size effect in Paris law and fatigue lifetimes for quasibrittle materials: Modified theory, experiments and micro-modeling.” *Int. J. of Fatigue* 83, 209–220.

563. Kirane, K., Salviato, M., and Bažant, Z.P. (2016). “Microplane triad model for simple and accurate prediction of orthotropic elastic constants of woven fabric composites.” *J. of Composite Materials* 50(9), 1247–1260.

564. Kirane, K., Salviato, M. and Bažant, Z.P. (2016). “Microplane-triad model for elastic and fracturing behavior of woven composites.” *Journal of Applied Mechanics* ASME 83 (April), pp. 041006-1—041006-14

565. Dönmez, A., and Bažant, Z.P. (2016). “Shape Factors for Concrete Shrinkage and Drying Creep in Model B4 Refined by Nonlinear Diffusion Analysis.” *Materials and Structures* (RILEM, Paris) 49, 4779–4784.

566. Salviato, M., Chau, Viet T., Li, Weixin, Bažant, Z.P., and Cusatis, G. (2016). “Direct testing of gradual postpeak softening of fracture specimens of fiber composites stabilized by enhanced grip stiffness and mass.” *J. of Applied Mechanics* ASME 83 (Nov.) 111003-1—111003-16; doi:10.1115/1.4034312; (extension of Bažant et al., arxiv No. 1604506).

567. Bažant, Z.P., Luo, Wen, Chau, Viet T., and Bessa, M.A. (2016). “Wave dispersion and basic concepts of peridynamics compared to classical nonlocal models.” *J. of Applied Mechanics* ASME 83 (Nov.) 111004-1—111004-16 (doi: 10.1115/1.4034319).

568. Chau, Viet T., Bažant, Z.P., and Su, Yewang (2016). “Growth model for large branched 3D hydraulic crack system in gas or oil shale.” *Philosophical Transactions of Royal Society A* 374 (issue 2078, Oct.), pp. ... (doi: 10.1098/rsta.2015.0418).

569. Bažant, Z.P. and Jirásek, M. (2016). “Zhroutení budov Světového obchodního centra (WTC) a hlediska stavební mechaniky” (in Czech). *Český časopis pro fyziku (Czech Journal of Physics)* 66 (5), 280–283.

570. Bažant, Z.P. and Chau, V.T. (2016). “Recent advances in global fracture mechanics of growth of large hydraulic crack systems in gas or oil shale: A review”. Chapter 13 in *New Frontiers in Oil and Gas Exploration*, C. Jin and G. Cusatis, Eds., Springer International, Switzerland.

571. Salviato, M., Kirane, K, Ashari, S.E., Bažant, Z.P., and Cusatis, G. (2016). “Experimental and Nu-



merical Investigation of Intra-Laminar Energy Dissipation and Size Effect in Two-Dimensional Textile Composites”, *Composites Science and Technology* 135, 67–75.

572. Bažant, Z.P., and Rahimi-Aghdam, S. (2016). “Diffusion-controlled and creep-mitigated ASR damage via microplane model: I. Mass concrete”. *J. of Engineering Mechanics ASCE* 142 (10); pp. 04016108-1–04016108-10; DOI: 10.1061/(ASCE)EM.1943-7889.0001186.

573. Rahimi-Aghdam, S., Bažant, Z.P., and Caner, F.C. (2016). “Diffusion-controlled and creep-mitigated ASR damage via microplane model: II. Material degradation, drying, and verification”. *J. of Engineering Mechanics ASCE* 142 (10); pp. 04016109-1–04016109-10; DOI: 10.1061/(ASCE)EM.1943-7889.0001185.

## 2017

574. Rahimi-Aghdam, S., Bažant, Z.P., and Qomi, M.J.A. (2017). “Cement hydration from hours to centuries controlled by diffusion through barrier shells of C-S-H.” *J. of the Mechanics and Physics of Solids* 99, 211–224.

### In Press:

Sinko, R., Vandamme, M., Bažant, Z.P., Keten, S. (2016). “Transient effects of drying creep in nanoporous solids: understanding the effects of nanoscale energy barriers.” *Proc. Royal Soc. A*, doi: 10.1098/rspa.2016.0490.

Yu, Q., Le, J.-L., Hubler, H.H., Wendner, R., Cusatis, G., and Bažant, Z.P. (2016). “Comparison of main models for size effect on shear strength of reinforced and pre-stressed concrete beams”. *Structural Concrete (fib)*, doi: 10.1002/suco.201500126, in press.

Kirane, K., Singh, K.D., Bažant, Z.P. (2016). “Size effect in the torsional strength of plain and reinforced concrete,” *ACI Structural Journal*, in press.

Dönmez, A., and Bažant, Z.P. (2016). “Size effect on punching strength of RC slabs without and with shear reinforcement.” *ACI Structural Journal*, under review.

## 5 Contributions to Wikipedia

1) Creep and shrinkage of concrete; 2) Size effect on structural strength; 3) Objective stress rates in finite strain inelasticity.

## 6 Selected Other Articles – Public Policy

G1. Bažant, Z.P., (1991), “Public funding of research: Results vs. cost” (in Czech) (acceptance speech of honorary doctorate from ČVUT, Prague, Nov.14, 1991), *Bulletin of ČVUT* No. 3 (Dec.), 5–9; abbreviated English version: *Materials and Structures* (Paris, RILEM) 25 (1992), 248–252.

G2. Bažant, Z.P. (1993), “Public funding of university research and graduate programs”, *Am. Soc. of Engrg.*

*Education (ASEE) Centennial Annual Conf. Proc.*, held in Urbana, Illinois, 1993, 341–345.

G3. Bažant, Z.P. (1994). “Public funding of research: comparison of results and costs.” (in Czech) *Vesmír* (Prague) 73 (6), 334–336.

G4. Bažant, Z.P. (2000). “Importance and Funding of Government-Sponsored Research” (in Czech, “Význam a financování státního výzkumu”). *Current Events (Události)*, Techn. University Brno (VUT v Brně), 10 (1), 10–11.

G4a. Bažant, Z.P. (2000). “Public Funding of Research: View from America” (in Czech, “Financování výzkumu z veřejných prostředků—Pohled z Ameriky”), *Stavitel (The Builder)*, Dec., 49–50 (update of G4).

G5. Bažant, Z.P. (2006). “Vision of the future of solid mechanics” (guest editorial). *J. of Applied Mechanics ASME* 73 (March), 181–182.

G7. Z.P. Bažant (2009). “Reminiscences and reflections of a mechanician by luck.” *Speech of Acceptance of Timoshenko Medal*, ASME International Mechanical Engrg. Congress, Orlando (Walt Disney Dolphin Hotel), Nov. 17, 2009; ASME–Appl. Mech. Div. Newsletter 2010; posted 2009 at Appl. Mech. Division website <www.iMechanica.org> at Harvard University.

## 7 Published Biographies and Volumes Dedicated to Bažant

A1. J. P. Dempsey and G. Pijaudier-Cabot, Guest Editors (1998), *Special Topics in Structural Mechanics of Geomaterials*, A Volume in Honor of Professor Zdeněk P. Bažant, Special Issue of *Int. J. of Solids & Structures* 35 (31–32), Nov., 4019–4350.

A2. G. Pijaudier-Cabot, Z. Bittnar and Bruno Gérard, Editors (1999), *Mechanics of Quasi-Brittle Materials and Structures*, A Volume in Honour of Professor Zdeněk P. Bažant’s 60th Birthday”, Hermes Science Publications, Paris (446 pp.).

A3. V. Červenka (2002). “Profesor Zdeněk P. Bažant členem americké Národní akademie věd”, *Beton* (Prague) 2 (5), p. 54.

A3’. Editorial, “Prof. Bažant Visiting CTU (Czech Technical University) in Prague” (Professor Zdeněk P. Bažant opět na ČVUT v Praze), *Pražská Technika* 2003 (No. 2), 10–11.

A4. S. Karlowski (2003), “Dr. Bazant receives the Structural Group Lifetime Achievement Award”, *ASCE Illinois Section News*, Vo. 44 (6), 2003, p. 1, p.4.

A5. C. Kisor (2003), “Tough Shoulders”. *Pilot* (Evanston Northwestern Healthcare) 67 (2), 10–11.

A6. L. Bundesen (2004), “Biography of Zdenek P. Bazant.” *Proc., National Academy of Sciences* 101 (37), 13397–13399.

A7. V. Křístek (2005), “Prof. Ing. Zdeněk P. Bažant, Ph.D., Dr.h.c.” (in Czech) *Aula—Review of Academic and Science Policy* (Prague) Vol. 13 (No. 2), 34–35.

A8. G.J. Dvorak, Guest Editor (2006), Special Issue in Honor of Professor Zdeněk P. Bažant, *International Journal of Fracture* 137 (1–4), pp. 1–294.

A9. C.K.Y. Leung and K. Willam, Guest Editors (2007), Special Issue dedicated to Z.P. Bažant, *Engineering Fracture Mechanics* 74 (1–2), pp. 1–280 (20 papers).

A10. Ta-Peng Chang and Jenn-Chuan Chern (2007). Proc., Asian Special Workshop on Concrete Technology in Honor of the 70th Birthday of Prof. Zdeněk P. Bažant, National Taiwan University of Science and Technology, Taipei, Nov. 2

A11. V. Křístek (2007). “Prof. Zdeněk P. Bažant 70 let (in Czech).” *Beton* (Prague), Vol. 7, No. 6 (Dec.), pp. 54–55.

A11a. ASME Bio at conferral of Nadai Medal (2008).

A11b. ASME Program Bio at election as ASME Honorary Member (2012).

A11c. ASME Journal Bio after election as ASME Honorary Member 2012 (2012).

A12. L. Vráblík and V. Křístek (2009). “Bažant’s collapse analysis of bridge in Palau.” *Beton* 8, No. 1, p. 69.

A13. Sarah Ostman, “Concrete Results” (life story and achievements of Bažant), McCormick Magazine, Fall 2012.

A14. Motto in “Tribute to Zdeněk P. Bažant”, Proc. CONCREEP-9 (9<sup>th</sup> Intern. Conf. on Creep, Shrinkage and Durability Mechanics of Concrete), with Preface on Bažant’s work (held in Sept. 2013 at MIT, Cambridge).

## 8 Research Articles in Conference Proceedings

.....many.

P1. Bažant, Z.P. (1964). “Die Berechnung des Kriechens und Schwindens nicht-homogener Betonkonstruktionen” (Analysis of creep and shrinkage of nonhomogeneous concrete structures), Proc. 7th Congress, *Intern. Assoc. for Bridge and Struct. Engrg., IABSE*, held in Rio de Janeiro, 887–897 (Portuguese transl.: Laboratório Nacional de Engenharia Civil, Trad. No. 218).

P2. Bažant, Z.P. (1965). “Ein neues Modell für Beschreibung der rheologischen Eigenschaften von glasfaserverstärkten Plasten” (A new model for rheological behavior of reinforced plastics), Proc., *Erste International-Tagung über GFP und Epoxydharze*, held in Berlin, Institut für Kunststoffe D. A. W., Paper E3/1.

P3. Bažant, Z.P. (1965). “Stress relaxation testing of plastics and fibre-glass plastics.” Proc., *Conf. on Exper. Methods of Investigating Stress and Strain in Structures*, held at Techn. Univ. Prague, Building Res. Inst., 797–809.

P4. Bažant, Z.P. (1965). “Electric analogues for creep of concrete structures.” Proc., *Conf. on Exper. Methods of Investigating Stress and Strain in Structures*, held at Techn. Univ. Prague, Building Res. Inst., 207–218.

P4a. Bažant, Z.P., and V. Weiss (1967). “Experimental research on new developments brought by synthetic resins to building techniques.” RILEM International Symp., Paris (4–6 September), publ. by Eyrolles.

P4b. Bažant, Z.P., and Skupin, L. (1967). “Prüfung der Relaxation und der Beständigkeit von GFP unter Spannung.” *II*

*Internationale Tagung über glasfaserverstärkten Kunststoffe und Gießharze*. March 13–18, 1967, Institut für organische Hochpolymere, Deutsche Akademie der Wissenschaften, Berlin (East) (9pp.)

P4c. Bažant, Z.P. (1968). “Effects of creep under repeated stresses superposed on sustained stresses.” *Final Report, 8th Congress of Int. Assoc. for Bridge & Struct. Engrg. (IABSE)* (held in New York), Theme IVa, IABSE, Zürich, 741–746.

P5. Bažant, Z.P. (1971). “Micropolar medium as a model for buckling of grid frameworks.” *Developments in Mechanics*, Vol. 6 (Proc. of the 12th Midwestern Mechanics conference, U. of Notre Dame), 587–593.

P6. Bažant, Z.P. (1971). “Numerically stable algorithm with increasing time steps for integral-type aging creep.” Proc., *First Intern. Conf. on Struct. Mech. in Reactor Techn. (SMiRT-1)* (org. by BAM, Berlin, and Commission of Eur. Communities), ed. by T.A. Jaeger, West Berlin, Vol. 4, Part H, 119–126.

P7. Bažant, Z.P., and Christensen, M. (1973). “Continuous approximation of large regular frames and the problem of a substitute frame.” “Response of multistory concrete structures to lateral forces.” *Am. Concrete Inst. Special Publ. No. 36*, 257–278.

P7a. Bažant, Z.P. (1975). “Material inelasticity and failure in the design of concrete structures for nuclear reactors”, Proc., *3rd Int. Conf. on Struct. Mech. in Reactor Techn. (SMiRT-3)* (held in London), Vol. H.

P8. Bažant, Z.P. (1975). “Pore pressure, uplift, and failure analysis of dams.” Proc., Symp. on *Criteria and Assumptions for Numerical Analysis of Dams*, held in Swansea, D.J. Naylor, K.G. Stagg and O.C. Zienkiewicz, eds., Dept. of Civil Engineering, of Wales, Swansea, and Brit. Nat. Committee on Large Dams, 781–808.

P9. Bažant, Z.P., and Kludum, W. (1976). “Quest for a quantitative model of corrosive processes and thermal cracking in ocean concrete structures.” *1st Int. Conf. on “Behavior of Ocean Structures”*, The Norwegian Inst. of Tech., Trondheim, Norway, 593–604.

P10. Bažant, Z.P. (1976). “Singular finite element for dynamics of elastic solids with cracks and sharp notches.” (Proc., 10th Anniv. Meeting, Soc. of Engrg. Science, Raleigh, N.C., 1973), *Recent Advances in Engineering Science*, ed. T. S. Chang, Vol. 7, 101–108, Scientific Publishers, Boston.

P11. Bažant, Z.P., and Estenssoro, L. F. (1977). “General numerical method for three-dimensional stress singularities in cracked or notched elastic solids.” *4th Int. Congress on Fracture (ICF4)*, Univ. of Waterloo, Canada, Vol. 3, 371–375.

P12. Bažant, Z.P. (1977). “Finite element for nonlinear creep, large buckling deflections, and cracking of plates on fluid foundation,” *Recent Advances in Engrg. Science* (Proc., 10th Anniv. Meeting, Soc. of Engr. Science, held in Raleigh, N.C., Nov. 1973), Vol. 8, 401–407.

P13. Bažant, Z.P. (1978). “Thermal effects, creep and nonlinear response of concrete reactor vessels.” Proc., *Conf. on Structural Analysis, Design and Construction of Nuclear Power Plants*, Porto Alegre, Brazil, Vol. 1, 117–130.

P14. Krizek, R. J., Ansal, A., and Bažant, Z.P. (1978). “Constitutive equation for cyclic behavior of cohesive soils.” Proc., *ASCE Specialty Conf. on Earthquake Engrg. & Soil Dynamics*, Cal. Inst. of Tech., Pasadena, CA (1), 557–568.

P14a. Bažant, Z.P. (1979). “Material behavior under various types of loading.” Proc., NSF Workshop on *High Strength Concrete* held at Univ. of Illinois, Chicago, Dec., S.P. Shah, ed., 79–91.

P15. Bažant, Z.P. (1981). “Anelasticity and fracture of concrete.” Proc. *Symp. on Mechanical Behaviour of Structured Media*, held in Ottawa, May 1981, publ. by Elsevier Sci.

Publ. Co., Amsterdam, 1–35.

P16. Bažant, Z.P., Chern, J.-C., Seidensticker, R. W., and Marchertas, A. H. (1981). “Design of prestressed concrete pressure vessel for use in primary and secondary containment of MLFBR Plants. Proc. 6th Int. Conf. on Struct. Mech. in Reactor Technology, held in Paris, Paper H2/2.

P17. Bažant, Z.P., Marchertas, A. H., and Seidensticker, R. W. (1981). “Design of top closures of concrete reactor vessels with very high energy absorption capability.” Proc. 6th Int. Conf. on Struct. Mech. in Reactor Technology, held in Paris, Paper H2/6.

P18. Bažant, Z.P., Rossow, E., and Horrigmoe, C. (1981). “Finite element program for creep analysis of concrete structures.” Proc. 6th Int. Conf. on Struct. Mech. in Reactor Technology, held in Paris, 1981, Paper H3/4.

P19. Cedolin, L., and Bažant, Z.P. (1981). “Fracture mechanics of crack bands in concrete.” *Fracture Mech. Methods for Ceramics, Rocks, and Concrete*, eds. S. W. Freiman and B. R. Fuller, Am. Soc. for Testing Materials STP-745.

P20. Ansal, A. M., Krizek, R. J., and Bažant, Z.P. (1981). “Prediction of soil behavior by endochronic theory.” Proc., *Workshop on Limit Equilibrium, Plasticity and Generalized Stress-Strain in Geotechnical Engineering*, held at McGill Univ. May 1980, ed. by R. K. Yong, and H.-Y. Ko, ASCE, New York 256–327.

P21. Bažant, Z.P. Ansal, A. M., and Krizek, R. J. (1981). “Critical appraisal of endochronic theory for soils.” Proc., *Workshop on Limit Equilibrium, Plasticity and Generalized Stress-Strain in Geotechnical Engineering*, held at McGill Univ., May 1980, ed. by R. K. Yong, and H.-Y. Ko, ASCE, New York, 286–327.

P22. Bažant, Z.P., and Panula, L. (1982). “New model for practical prediction of creep and shrinkage.” in *Designing for Creep and Shrinkage in Concrete Structures* (Proc. of A. Pauw Symposium held in Houston, 1978), *ACI Special Publication SP-76*, Am. Concrete Inst., Detroit, 1982, pp. 7–23.

P23. Bažant, Z.P., Ansal, A. M., and Krizek, R. J. (1982). “Endochronic models for soils.” in *Soil Mechanics—Transient and Cyclic Loads* (Proc. of a Conf. held in Swansea, 1980), ed. by G. N. Pande and O. C. Zienkiewicz, J. Wiley & Sons, London 1982, 419–438.

P24. Ansal, A. M., Krizek, R. J., and Bažant, Z.P. (1982). “Seismic analysis of an earth dam based on endochronic theory.” in *Numerical Methods in Geomechanics* (Proc., Intl. Symp. held in Zürich, Sept. 1982), ed. by R. Dungar, et al., A. A. Balkema, Rotterdam, 559–576.

P25. Bažant, Z.P. (1982), “Application of fracture mechanics in structural analysis of concrete and geomaterials, in *Mécanique de la rupture*.” Proc. of a Seminar at C.E.B.T.P., Saint-Rémy-lès-Chevreuses, France, June 8–11, 1982.

P26. Bažant, Z.P. (1982). “Crack band model for fracture of geomaterials.” Proc. 4th Intern. Conf. on Num. Meth. in Geomechanics, ed. by Z. Eisenstein, held at University of Alberta, Edmonton, Vol. 3, 1137–1152.

P27. Bažant, Z.P. (1982) “Mathematical models of nonlinear behavior and fracture of concrete.” in *Nonlinear numerical analysis of reinforced concrete*, ed. by L.E. Schwer, Proc., ASME Winter Annual Meeting, held in Phoenix, Arizona, publ. by ASME, New York, pp. 1–25.

P28. Bažant, Z.P., and Oh, B. -H. (1983). “Microplane model for fracture analysis of concrete structures.” Proc., *Symp. on the Interaction of Non-Nuclear Munitions with Structures*, held at U.S. Air Force Academy, Colorado Springs, 49–53.

P29. Bažant, Z.P. (1983). “Probabilistic problems in prediction of creep and shrinkage effects in structures.” Proc. 4th Intern. Conf. on Applications of Statistics and Probability

in *Soil and Structural Engrg.*, Universita di Firenze, Florence, Italy, 325–356.

P29a. Pfeiffer, P.A., Marchertas, A.H., and Bažant, Z.P. (1983). “Blunt crack band propagation in finite element analysis for concrete structures,” Trans. 7th Int. Conf. on Structural Mech. in Reactor Technology (SMiRT) (held in Chicago), ed. by S.H. Fistedis et al., North Holland, Paper H5/2.

P29b. Bažant, Z.P. (1983). “Fracture in concrete and reinforced concrete,” Preprints, IUTAM Prager Symposium on *Mechanics of Geomaterials: Rocks, Concretes, Soil*, ed. by Z.P. Bažant, Northwestern University, Evanston, 281–316.

P29c. Bažant, Z.P. (1983). “Fracture of heterogeneous brittle materials,” in *Failure Criteria of Structured Media*, Proc. of *CRNS Intern. Colloquium No. 351*, held in Villars de Lans, France, June 21–24, 1983, ed. by J.P. Boehler, publ. by A.A. Balkema in 1993, Rotterdam, 371–374.

P30. Bažant, Z.P., Kim, J. K., and Pfeiffer, P. (1984). “Determination of nonlinear fracture parameters from size effect tests.” Preprints, *NATO Advanced Research Workshop on Application of Fracture Mechanics to Cementitious Composites*.” Northwestern University, Evanston, IL, ed. by S. P. Shah, 143–169.

P31. Bažant, Z.P. (1984). “Microplane model for strain-controlled inelastic behavior.” Chapter 3 in *Mechanics of Engineering Materials*.” ed. by C. S. Desai and R. H. Gallagher, J. Wiley, London, 45–59.

P32. Bažant, Z.P. (1984). “Is strain-softening mathematically admissible?” Proc. 5th ASCE-EMD Specialty Conference, Laramie, WY, ed. by A. P. Boreš and K.P. Chong, pp. 1377–1379.

P33. Bažant, Z.P., and Kim, Jenn-Keun (1985). “Fracture theory for nonhomogeneous brittle materials with application to ice.” Proc. *ASCE Nat. Conf. on Civil Engineering in the Arctic Offshore—ARCTIC 85*, San Francisco, ed. by L. F. Bennett, ASCE New York, 917–930.

P34. Bažant, Z.P. (1985). “Fracture mechanics and strain-softening in concrete.” Preprints, *U.S.-Japan Seminar on Finite Element Analysis of Reinforced Concrete Structures*, Tokyo, Vol. 1, pp. 47–69.

P35. Bažant, Z.P. (1985). “Probabilistic analysis of creep effects in concrete structures.” 4th Int. Conf. on Struct. Safety and Reliability (ICOSSAR 85), Kobe, Japan, ed. by I. Konishi, A. H.-S. Ang and M. Shinozuka, Vol. 1, pp. 331–344.

P36. Bažant, Z.P., and Pfeiffer, P. A. (1985). “Tests of shear fracture and strain-softening in concrete.” Proc., 2nd Intern. Symp. on the Interaction of Non-nuclear Munitions with Struct. held in Panama City Beach, Fla., pp. 254–264.

P37. Bažant, Z.P. (1985). “Distributed cracking and nonlocal continuum.” *Finite Element Methods for Nonlinear Problems*, ed. by P. Bergan, K.-J. Bathe & W. Wunderlich, Springer, Berlin 1986, 77–102; also Preprints, U.S.-Europe Symp., Trondheim 1985, Paper II-2.

P38. Bažant, Z.P. (1985). “Comment on Hillerborg’s size effect law and fictitious crack model.” *Dei Poli Anniversary Volume*, Politecnico di Milano, Italy, ed. by L. Cedolin et al., 335–338.

P39. Bažant, Z.P., Kim, Jenn-Keun, and Pfeiffer, P. (1985). “Continuum model for progressive cracking and identification of nonlinear fracture parameters.” in *Appl. of Fracture Mechanics to Cementitious Composites*, ed. by S. P. Shah, Martinus Nijhoff Publ., Dordrecht-Boston, 197–246.

P40. Bažant, Z.P., and Krístek, V. (1986). “Effects of shear lag and randomness of material creep properties on deflections and stresses in prestressed concrete box girders.” Preprints,

4th RILEM Intern. Symp. on "Creep and Shrinkage of Concrete: Mathematical Modeling." ed. by Z.P. Bažant, held at Northwestern University, 675–684.

P41. Bažant, Z.P., Şener, S., and Kim, Jenn-Keun (1986). "Effect of cracking on moisture diffusion through concrete and shrinkage." *ibid* 879–884.

P42. Bažant, Z.P. (1986). "Comment on Ingraffea and Panthaki's analysis of shear fracture tests of concrete." *Finite Element Analysis of Reinforced Concrete Structures* (Proc., U.S.-Japan Workshop held in Tokyo, 1985), ed. by C. Meyer and H. Okamura, ASCE, New York, 121–150 (prelim. version: Workshop Preprints, 1985).

P43. Bažant, Z.P., and Pijaudier-Cabot, G. (1987). "Modeling of distributed damage by nonlocal continuum with local strains", *Numerical Methods in Fracture Mech.* (Proc., 4th Int. Conf. held in San Antonio, Texas), ed. by A. R. Luxmore et al., Pineridge Press, Swansea, U.K., 411–431.

P44. Bažant, Z.P., Lin, Feng-Bao, and Pijaudier-Cabot, G. (1987). "Yield limit degradation: nonlocal continuum with local strain." *Computational Plasticity (COMPLAS 1)* (Proc., First Int. Conf. held in Barcelona, Spain, April), ed. by D. R. J. Owen, E. Hinton and E. Oñate, publ. by Pineridge Press, Swansea, U.K., 1757–1779.

P45. Bažant, Z.P. (1987). "Fracture energy of heterogeneous material and similitude." Preprints, *SEM-RILEM Int. Conf. on Fracture of Concrete and Rock* (held in Houston, Texas, June 1987), ed. by S. P. Shah and S. E. Swartz, publ. by SEM (Soc. for Exper. Mech.) 390–402.

P46. Bažant, Z.P., and Pfeiffer, P. A. (1987). "Fracture energy of concrete: Its definition and determination from size effect tests." in *Concrete Durability* (K. and B. Mather Intern. Conf. held in Atlanta), ed. by J. M. Scanlon, Amer. Concrete Inst. Spec. Publ. SP-100 (1), 89–109.

P47. Bažant, Z.P., and Şener, S. (1987). "Tests of size effect in pullout of reinforcing bars from concrete." Proc., IABSE Colloquium on *Computational Mechanics of Concrete Structures—Advances and Applications* (held in Delft, Netherlands, Aug. 1987), Int. Assoc. for Bridge and Struct. Engrg., Zürich, 261–284.

P48. Bažant, Z.P., and Pijaudier-Cabot, G. (1988). "Non-local continuum damage and measurement of characteristic length." in *Mechanics of Composite Materials—1988*, AMD 92, ed. by G. J. Dvorak and N. Laws, Am. Soc. of Mech. Engrs., N.Y. (Joint ASME/SES Conference, Berkeley, CA), 79–85.

P49. Bažant, Z.P., and Lin, Feng-Bao. (1988). "Localization instability for softening in ellipsoidal regions and bands." *ibid.*, 7–16.

P50. Bažant, Z.P. (1989). "Stable states and stable paths of propagation of damage zones and interactive fractures." in *Cracking and Damage*, J. Mazars and Z.P. Bažant, eds., Elsevier, London, 183–207 (also Preprints, "France-U.S. Workshop on Strain Localization and Size Effect Due to Cracking and Damage", ed. J. Mazars and Z.P. Bažant, held at E.N.S., Université Paris VI, Cachan, 1988)

P51. Pijaudier-Cabot, G. and Bažant, Z.P. (1989). "Local and nonlocal models for strain-softening, and their comparison based on dynamic analysis, *ibid.*, 379–390 (also Preprints, 1988).

P52. Droz, P., and Bažant, Z.P. (1989). "Nonlocal analysis of stable states and stable paths of propagation of damage shear bands", *ibid.*, 415–425 (also Preprints, 1988).

P53. Bažant, Z.P., and Kazemi, M.T. (1988). "Brittleness and size effect in concrete structures." Preprints, Engrg. Foundation Conf. on *Advances in Cement Manufacture and Use*, E. Gartner, ed., held at Trout Lodge, Potosi, MO, Paper No. 5 (also Proc.).

P54. Bažant, Z.P., Tabbara, M. R. and Kazemi, M. T. (1989). "Stable paths of interacting crack systems and micro-mechanics of damage", in *Advances in Fracture Research*, Proc., 7th International Conference on Fracture (ICF7), Houston, ed. by K. Salama et al., Vol. 3, Pergamon Press, 2141–2152.

P55. Prat, P. C., and Bažant, Z.P. (1989). "Microplane model for triaxial deformation of soils", in *Numerical Models in Geomechanics* (NUMOG III), Proc. "Third International Symposium on Numerical Models in Geomechanics", held at Niagara Falls, Canada, ed. by S. Pietruszczak and G. N. Pande, Elsevier, London and New York, 139–146.

P56. Bažant, Z.P., Kazemi, M. T., and Gettu, R. (1989). "Recent studies of size effect in concrete structures", *Transactions, Tenth International Conference on Structural Mechanics in Reactor Technology* (SMiRT 10), Anaheim, CA, Vol. H, ed. by A.H. Hadjian, pp. 85–93.

P57. Bažant, Z.P., and Tabbara, M. R. (1989). "Stable propagation of interacting crack systems and modeling of damage", *ibid.*, Vol. Q, pp. 1–8.

P58. Bažant, Z.P., and Xi, Yunping (1989). "Probabilistic Prediction of Creep and Shrinkage in Concrete Structures: Combined Sampling and Spectral Approach." Proceedings, *Fifth International Conference on Structural Safety and Reliability (ICOSSAR)*, A. H.-S. Ang et al., eds., held in San Francisco (Aug.), published by Am. Soc. of Civil Engineers, New York, Vol. I, pp. 803–808.

P59. Bažant, Z.P. (1989). "Bifurcations and thermodynamic criteria of stable paths of structures exhibiting plasticity and damage propagation." in *Computational Plasticity (COMPLAS 2)* (Proc., Second Int. Conf. held in Barcelona, Spain, Sept.), ed. by D.R.J. Owen, E. Hinton and E. Oñate, publ. by Pineridge Press, Swansea, U.K., 1–25.

P60. Bažant, Z.P., Şener, S. and Prat, P. C. (1989). "Fracture mechanics size effect and ultimate load of beams under torsion." in *Fracture Mechanics: Application to Concrete*, ed. by V.C. Li and Z.P. Bažant, *American Concrete Institute Special Publication*, SP-118, Detroit, 171–178.

P61. Bažant, Z.P., and Gettu, R. (1989). "Determination of nonlinear fracture characteristics and time dependence from size effect." in *Fracture of Concrete and Rock: Recent Developments*, ed. by S. P. Shah, S. E. Swartz and B. Barr (Proc. of a conf. held at the University of Wales College, Cardiff, U.K.), Elsevier, London, 549–565.

P62. Bažant, Z.P. (1989). "General method for stability analysis of structures with growing interacting cracks." in *Analysis of Concrete Structures by Fracture Mechanics—Proc. of RILEM Workshop* dedicated to Prof. Arne Hillerborg, held at Abisco, Sweden, June 1989, ed. by L. Elfgrén and S.P. Shah, University of Lullea, Chapman and Hall, London, 131–136.

P63. Bažant, Z.P., and Tabbara, M. R. (1990). "Random particle model for brittle composite materials." *Proc. Third Int. Conf. on Numerical Methods in Engineering: Theory and Applications (NUMETA 90)* Jan. 7–11, 1990, held at University College of Swansea, Swansea, Wales, ed. by G. N. Pande and J. Middleton, Vol. 2, Elsevier Applied Science, London, 673–690.

P64. Bažant, Z.P., and Carol, I. (1990). "Geometric damage tensor uncoupled from constitutive properties and current status of strain-softening models." in *Development in Theoretical and Applied Mechanics*, Vol. 15 (Proc. 15th Southeastern Conf. on Theoretical and Applied Mechanics, Georgia Inst. of Tech., Atlanta), ed. by S. V. Hanagud, et al., 927–933.

P65. Bažant, Z.P., and Özbolt, J. (1990). "Nonlocal microplane model: Tensile and compression fractures and triaxial damage." in *Computer-Aided Analysis and Design of Con-*

crete Structures (Proc., Second Int. Conf., SCI-C, Zell am See, Austria, April 4-6, 1990), ed. N. Bićanić and H. Mang, Pineridge Press, Swansea, U.K., 809–829.

P66. Pijaudier-Cabot, G., Bažant, Z.P., and Berthaud, Y. (1990). “Interacting crack systems in particulate or fiber-reinforced composites.” in *Numerical Methods in Fracture Mechanics* (Proc. of 5th Int. Conf. held in Freiburg, Germany, April 1990), A. R. Luxmoore and D. R. J. Owen, eds., 403–414.

P67. Bažant, Z.P., and Kim, Joong-Koo (1990). “Practical prediction of concrete shrinkage and its uncertainty.” in *Serviceability and Durability of Construction Materials* (Proc., 1st Materials Engrn. Congress,” ASCE, held in Denver, Aug. 1990), ed. B. A. Suprenant, pp.617–625.

P68. Gettu, R., Bažant, Z.P., and Karr, M. E. (1990). “Brittleness of high strength concrete.” *ibid.*, pp. 976–985.

P69. Bažant, Z.P., and Gettu, R. (1990). “Size effect in concrete structures and influence of loading rates.” *ibid.*, pp. 1113–1123.

P70. Bažant, Z.P., and Tabbara, M. R. (1990). “Localization instabilities due to damage and fracture propagation: application to tensile specimens.” *ibid.*, pp. 1325–1334.

P71. Prat, P. C. and Bažant, Z.P. (1990). “A microplane constitutive model for soils.” *ibid.*, pp. 452–461.

P72. Bažant, Z.P. (1990), “Rate effect, size effect and non-local concepts for fracture of concrete and other quasi-brittle materials.” Preprints, *NATO Advanced Research Workshop* on “Toughening Mechanisms in Quasi-Brittle Materials, Northwestern University, S. P. Shah, ed., 143–166.

P73. Bažant, Z.P., Tabbara, M.R., Kazemi, M.T., and Pijaudier-Cabot, G. (1990). “Random particle simulation of damage and fracture in particulate or fiber-reinforced composites”, *Damage Mechanics in Engineering Materials* (ASME Winter Annual Meeting, Dallas, Nov. 1990), AMD-Vol.109, ed. by J. W. Ju, D. Krajcinovic, and H. L. Schreyer, Am. Soc. of Mechanical Engrs., 41–55.

P74. Bažant, Z.P., Pijaudier-Cabot, G., and Berthaud, Y. (1990). “Modeling of cracking induced damage in particulate and fiber-reinforced composites” (ASME *Winter Annual Meeting*, Dallas, TX, Nov. 1990), AMD-Vol. 111, ed. by G.J. Dvorak and D.C. Lagoudas, 87–94.

P75. Bažant, Z.P., and Xi, Y. (1990). “Combined spectral and sampling approach for probabilistic prediction of creep and shrinkage effects in concrete structures” in *Von Werkstoff zur Konstruktion*, Hubert K. Hilsdorf’s 60th birthday volume, ed. by J. Kropp, Universität Karlsruhe, Germany, 249–265.

P76. Bažant, Z.P. (1991). “Rate effect, size effect and non-local concepts for fracture of concrete and other quasi-brittle materials” in *Toughening Mechanisms in Quasi-brittle Materials* (Proceedings of NATO Research Workshop held at Northwestern University in July 1990), ed. by S.P. Shah, Kluwer Academic Publ., Netherlands, 131–153.

P77. Bažant, Z.P., and Xi, Y. (1991). “Size effect in quasi-brittle micro-heterogeneous structures: Deterministic and statistical theories in application of fracture mechanics to reinforced concrete.” (Proc. of Int. Research Workshop, Politecnico di Torino, Italy, October 1990), ed. A. Carpinteri, Elsevier, London, 1–16.

P78. Bažant, Z.P. (1991). “Recent progress in damage modeling: Nonlocality and its microscopic cause.” in *Constitutive Laws for Engineering Materials* (Proceedings, 3rd International Conference held in Tucson, AZ, Jan.), ed. by C.S. Desai et al., 377–385.

P79. Carol, I., and Bažant, Z.P. (1991), “Damage-rheology uncoupling for microplane damage tensor, with application to concrete with creep.” *ibid.*, 391–394.

P80. Bažant, Z.P., and Gettu, R. (1991). “Size effects in the fracture of quasi-brittle materials.” in *Cold Regions Engineering* (Proc., 6th ASCE International Specialty Conference, held in Hanover, NH, Feb. 1991), ed. by D.S. Sodhi, ASCE, New York, 595–604.

P81. Prat, P.C., and Bažant, Z.P. (1991). “Microplane constitutive model for inelastic behavior of soils” in *Computer Methods and Advances in Geomechanics* (Proc., 7th International Conference on Computer Methods and Advances in Geomechanics, held in Cairns, Australia, May 1991), ed. by G. Beer et al., Balkema, Rotterdam.

P82. Bažant, Z.P., Xi, Y., and Molina, L. (1991). “Moisture diffusion in concrete and mechanisms of drying creep.” in *Mechanics Computing in 1990’s and Beyond* (Proc., *Engineering Mechanics Division Conference* held in Columbus, Ohio, May 1991), ed. by H. Adeli and R.L. Sierakowski, 1146–1148.

P83. Prat, P.C., and Bažant, Z.P. (1991). “A time-dependent microplane model for creep of cohesive soils.” *ibid.*, 1224–1228.

P84. Bažant, Z.P. (1991). “Size effects on fracture and localization: Aperçu of recent advances and their extension to simultaneous fatigue and rate sensitivity” in *Fracture Processes in Concrete, Rock and Ceramics* (Proceedings of International RILEM/ESIS Conference, “Fracture Processes in Brittle Disordered Materials: Concrete, Rock, Ceramics.” held in Noordwijk, Netherlands, June), ed. by J.G.M. van Mier, E & FM Spon, London, 417–429.

P85. Ožbolt, J., and Bažant, Z.P. (1991). “Cyclic microplane model for concrete.” *ibid.*, 639–650.

P86. Bažant, Z.P., and Xu, K. (1991). “Size effect in fatigue fracture” (Proceedings, 9th ASCE Structures Congress, Indianapolis, IN, April), ed. by T.G. Williamson, publ. by ASCE, New York, 458–461.

P87. Bažant, Z.P. (1991). “Fracture mechanics of quasi-brittle structures: Recent advances.” (Proc., *11th International Conference on Structural Mechanics in Reactor Technology, SMiRT-11*, Tokyo, August), ed. by H. Shibata, Vol. H, Paper H04/1, pp. 97–107.

P88. Bažant, Z.P., and Xi, Y. (1991). “Nonlocal generalization of Weibull theory for random strength of concrete structures” *ibid.*, Vol. M, Paper M11(H)/S, pp. 247–252.

P89. Bažant, Z.P., He S., Plesha, M.E., and Rowlands, R.E. (1991) “Rate and size effect in concrete fracture: Implications for dams.” (Proc., Int. Conf. on Dam Fracture, Denver, Colorado, September), ed. by V. Saouma, R. Dungan, and D. Morris, University of Colorado, 413–425.

P90. ACI Committee 446 on Fracture Mechanics (1992) (Bažant, Z.P. princ. author & chairman). “Fracture mechanics of concrete: concepts, models and determination of material properties.” *Fracture Mechanics of Concrete Structures* (Proc. FraMCoS1—Int. Conf. on Fracture Mechanics of Concrete Structures, Breckenridge, Colorado, June), ed. by Z.P. Bažant, Elsevier Applied Science, London, 1–140 (reprinting of S25).

P91. Bažant, Z.P., and Gopalaratnam, V.S. (1992). “Fracture mechanics of concrete: An aperçu of basic concepts and models.” *ibid.*, 145–154.

P92. Xi, Y., and Bažant, Z.P. (1992). “Markov process model for random growth of crack with R-curve.” *ibid.*, 179–182.

P93. Carol, I., Bažant, Z.P., Prat, P.C. (1992). “Microplane-type constitutive models for distributed damage and localized cracking in concrete structures.” *ibid.*, 299–304.

P94. Bažant, Z.P., and Cedolin, L. (1992). “Why direct tension specimens flex and break at midlength.” *ibid.*, 443–448.

P95. Bažant, Z.P., and Kwon, Y.W. (1992). “Size effect in strength of reinforced concrete columns.” *ibid.*, 556–560.

- P96. Isenberg, J., Bažant, Z.P., Mindess, S., Suaris, W., Reinhardt, H.W. (1992). "Dynamic fracture." *ibid*, 601–609.
- P97. Bažant, Z.P., and Jirásek, M. (1992). "R-curve modeling of rate effect in static fracture and its interference with size effect." *ibid*, 918–923.
- P98. Bažant, Z.P. (1992). "Large-scale fracture of sea ice plates." (Proc. *11th IAHR Ice Symposium*, Banff, Alberta), June (ed. by T.M. Hruday, Dept. of Civil Engineering, University of Alberta, Edmonton), vol 2., pp. 991–1005.
- P99. Bažant, Z.P. (1992). "Should design codes consider fracture mechanics size effect?" in *Concrete Design Based on Fracture Mechanics*, ed. by W. Gerstle and Z.P. Bažant, American Concrete Institute Special Publication, SP-134, Detroit, 1–23.
- P100. Pijaudier-Cabot, G., Bažant, Z.P., and Benallal, A. (1992). "Localization limiting properties of nonlocal damage models." *Damage Mechanics and Localization* (Proc. Winter Annual Meeting of ASME, Anaheim, November), ed. by J.W. Ju and K. C. Valanis, Am. Soc. of Mech. Engrgs., New York, 125–134.
- P101. Bažant, Z.P. (1992). "New concept of nonlocal continuum damage: crack influence function." *Macroscopic Behavior of Heterogenous Materials from the Microstructure* (Proc. Winter Annual Meeting of ASME, Anaheim, November), ed. by S. Torquato and D. Krajcinovic, Am. Soc. of Mech. Engrgs., New York, 153–160.
- P102. Jirásek, M., and Bažant, Z.P. (1993). "Discrete element modeling of fracture and size effect in quasibrittle materials: Analysis of sea ice." Proc. held at M.I.T., *2nd Int. Conf. on Discrete Element Methods (DEM)*, March, ed. by J.R. Williams and G. G.W. Mustoe, IESL Publications, 357–368.
- P103. Bažant, Z.P., Li, Y.-N. (1993). "Fracture analysis of penetration through floating sea ice plate and size effect." (Proc. *First Joint Mechanics Meeting of ASME-ASCE-SES (Meet'n'93)*, held in Charlottesville, VA., June, ed. by J.P. Dempsey, Z.P. Bažant, Y.D.S. Rajapakse and S. Shyam Sunder, 131–144.
- P104. Bažant, Z.P., and Jirásek, M. (1993). "Effects of crack growth rate and creep in static fracture of concrete." Proc., *12th Int. Conf. on Struct. Mech. in Reactor Tech. (SMiRT)*, held at Stuttgart University, August, ed. by K. Kussmaul, Elsevier Science Publishers, Vol. A. Supplement, 175–180.
- P105. Bažant, Z.P., and Xi, Y. (1993). "New test method to separate microcracking from drying creep: Curvature creep at equal bending moments and various axial forces." Proc., *5th International RILEM Symposium on Creep and Shrinkage of Concrete (ConCreep 5)*, held at U.P.C., Barcelona, September, ed. by Z.P. Bažant and I. Carol, E & FN Spon, London, 77–82.
- P106. Xi, Y., and Bažant, Z.P. (1993). "Improved pore water diffusion model for creep analysis of concrete structures." *ibid*, 169–174.
- P107. Carol, I., and Bažant, Z.P. (1993). "Solidification theory: A rational and effective framework for constitutive modeling of aging viscoelasticity." *ibid*, 177–188.
- P108. Xi, Y., and Bažant, Z.P. (1993). "Continuous retardation spectrum for solidification theory of concrete creep." *ibid*, 225–230.
- P109. Wu, Zhi-Shen, and Bažant, Z.P. (1993). "Finite element modeling of rate effect in concrete fracture with influence of creep." *ibid*, 427–432.
- P110. Bažant, Z.P. (1993). "Size effect in tensile and compressive quasibrittle failures." *Preprints, JCI International Workshop on Size Effect in Concrete Structures*, held at Tohoku University, Sendai, Japan, October, 141–160; also Proceedings, "Size effect in concrete structures", ed. by H. Mitsuhashi, H. Okamura and Z.P. Bažant, E & FN Spon, London-New York, 1994, 161–180.
- P110a. Bažant, Z.P. (1993)  $\equiv$  P29c.
- P111. Bažant, Z.P. (1994). "Recent advances in fracture mechanics, size effect and rate dependence of concrete: Implications for dams." Proc., *Int. Workshop on Dam Fracture and Damage*, held at Chambéry, France, March, A.A. Balkema, Rotterdam, 41–54.
- P112. Bažant, Z.P., Jirásek, M., Xiang, Y., and Prat, P.C. (1994). "Microplane model with stress-strain boundaries and its identification from tests with localized damage." Proc., *Computational Modelling of Concrete Structures (EURO-C)*, held at Innsbruck, Austria, March, Pineridge Press, 255–261.
- P113. Bažant, Z.P., and Y. Xi (1994). "Fracture of random quasibrittle materials: Markov process and Weibull-type models." *Structural Safety and Reliability* (Proc. of ICOSSAR'93—6th Intern. Conf. on Struct. Safety & Reliability, Innsbruck, Austria, Aug. 9–13, 1993), ed. by G.I. Schuëller, M. Shinozuka and J.T.P. Yao, A.A. Balkema, Rotterdam-Brookfield, 609–614.
- P114. Bažant, Z.P., and Kazemi, M. T. (1994). "Localization of softening damage in frames and implications for earthquake resistance." Proc., *5th U.S. National Conference on Earthquake Engineering* (held in Chicago, July 1994), Earthquake Engineering Research Institute, Oakland, California, Vol. 1, 313–322.
- P115. Bažant, Z.P., and Xi, Y. (1994). "Mechanism of drying creep of cement-based materials: diffusion processes and microcracking" (Proc., Symp. at Amer. Ceramic Soc. PAC-RIM Meeting in Honolulu, Hawaii, Nov. 1993). *Cement Technology*, ed. by E. M. Gartner and H. Uchikawa, Ceramic Transactions 40, 195–201.
- P116. Bažant, Z.P., and Vitek, J.L. (1994). "Stud connectors in composite beams: simplified failure modeling and size effect." *Fracture and Damage in Quasibrittle Structures: Experiment and Computer Modeling* (Proc., Europe-U.S. Workshop held at Czech Techn. Univ., Prague, Sept. 21-23, 1994, sponsored by U.S.-NSF and European Union), ed. by Bažant, Z.P., Bittnar, Z., Jirásek, M., and Mazars, J., E. & FN Spon, London-New York, 333–341.
- P117. Bažant, Z.P., and Baweja, S. (1994). "Concrete creep and shrinkage prediction models for design codes." *Concrete Technology: New Trends, Industrial Applications* (Proc., *Con-Tech*, Int. RILEM Workshop on Technology Transfer of New Trends in Concrete, Barcelona, Nov. 7–9), ed. by A. Aguado, R. Gettu, S.P. Shah, publ. by E & FN Spon, London-New York, 213–237.
- P118. Bažant, Z.P., and Jirásek, M. (1995). "Continuum damage due to interacting propagating microcracks: new non-local model and localization analysis." in *Fracture of Brittle, Disordered Materials—Concrete, Rock and Ceramics* (Proc. IUTAM Symposium held in Brisbane, 1993), ed. by G. Baker and B.L. Karihaloo, E & FN Spon, 423–437.
- P119. Bažant, Z.P., and Xiang, Y. (1994). "Compression failure of quasibrittle materials and size effect." in *AMD-Vol. 185, Damage Mechanics in Composites* (ASME Winter Annual Meeting, Chicago, Nov. 1994), ed. by D.H. Allen and J.W. Ju, 143–148.
- P120. Bažant, Z.P., Li, Y.-N., Jirásek, M., Li, Z., and Kim, J.-J. (1995). "Effect of Size on Distributed Damage and Fracture of Sea Ice." Proc., *Sea Ice Mechanics and Arctic Modeling Workshop*, Anchorage, Alaska, org. by Northwest Research Associates, Bellevue, WA, sponsored by ONR, pp. 73–83.
- P121. Bažant, Z.P., and Jirásek, M. (1995). "Size effect determination of macrofracture characteristics of random heterogeneous material." *Engineering Mechanics, Proc. of 10th*

Conference ASCE, held in Boulder, May 1995, ed. by S. Sture, Vol. 1, 317-320.

P122. Bažant, Z.P., Xiang, Y., and Ožbolt, J. (1995). "Nonlocal microplane model for damage due to cracking." *ibid.*, Vol. 2, 694-697.

P123. Bažant, Z.P., Xi, Yunping, and Baweja, S. (1995). "Continuous retardation spectrum for solidification theory of aging creep of concrete." *ibid.*, Vol. 2, 970-973.

P124. Bažant, Z.P., Kim, J.-J., and Li, Y.-N. (1995). "Part-through bending cracks in sea ice plates: Mathematical modeling." in *AMD-Vol. 207, Ice Mechanics* (ASME Summer Meeting, Los Angeles, CA, June 1995), ed. by J.P. Dempsey and Y. Rajapakse, 97-105.

P124a. ( $\approx$  353) Bažant, Z.P. (1995). "Influence of specimen or structure size on measured fracture parameters." Position Paper of Working Group 3, Proc., *NSF Workshop on Standards for Measurement of Mode I Fracture Properties of Concrete*, ed. by B.I.G. Barr et al., University of Wales, Cardiff.

P125. Bažant, Z.P. (1995). "Additive volumetric-deviatoric split of finite strain tensor and its implication for cracking models." in *Fracture Mechanics of Concrete Structures* (Proc., 2nd Int. Conf. on Fracture Mech. of Concrete and Concrete Structures (FraMCoS-2), held at ETH, Zürich), ed. by F.H. Wittmann, Aedificatio Publishers, Freiburg, Germany, 515-534.

P126. Bažant, Z.P., and Jirásek, M. (1995). "Seismic localization of softening cracking damage in concrete frames." *ibid.* 1397-1406.

P127. Jirásek, M., and Bažant, Z.P. (1995). "Particle model for fracture and statistical micro-macro correlation of material constants." *ibid.* 955-964.

P128. Carol, I., and Bažant, Z.P. (1995). "New developments in microplane and multicrack models for concrete." *ibid.* 841-855.

P129. Bažant, Z.P., and Prat, P.C. (1995). "Elastic material with systems of growing or closing cracks: Tangential Stiffness." in *Contemporary Research in Engineering Science* (Proc., Eringen Medal Symp. honoring S.N. Atluri, 32nd Annual Meeting, Soc. of Engrg. Science, New Orleans, Oct.), ed. by R. Batra, Springer Verlag, New York, 55-65.

P130. Bažant, Z.P., and Desmorat, R. (1995). "Softening and size effect in bond fracture." in *Interface Fracture and Bond*, ACI Special Publ. SP-156, ed. by O. Buyukozturk and M. Wecharatana, Amer. Concrete Institute, Detroit, 11-23.

P131. Li, Y.N., and Bažant, Z.P. (1996). "Scaling of cohesive fracture (with ramification to fractal cracks)," in *Size-Scale Effects in the Failure Mechanisms of Materials and Structures* (Proc. of IUTAM Symp., Politecnico di Torino, Oct. 1994), A. Carpinteri, Ed., E & FN Spon, London, 274-299 (with Appendix by Bažant, Z.P., "Can scaling of structural failure be explained by fractal nature of cohesive fracture?" 284-299).

P132. Bažant, Z.P., and Xiang, Y. (1996). "Compression failure in reinforced concrete columns and size effect." in *Worldwide Advance in Structural Concrete and Masonry* (Proc., Symp. at 14th Structures Congress, Chicago, Apr. 1996), ed. by, A.E. Schultz and L.L. McCabe, ASCE, New York, 443-451.

P132a. ( $\equiv$  353) Bažant, Z.P. (1996). "Size effect aspects of measurement of fracture characteristics of quasibrittle material." in *Fracture Mechanics of Concrete Structures*, Vol. 4 [Proc., 2nd Int. Conf. on Fracture Mech. of Concrete and Concrete Structures (FraMCoS-2), held in 1995 at ETH, Zürich], ed. by F.H. Wittmann, Aedificatio Publishers, Freiburg, Germany, 1749-1770; reprinted from *Adv. Cem. Based Mat.*.

P133. Bažant, Z.P., and Jirásek M. (1996). "Dynamic localization instability due to softening damage in frames under earthquake loading." Aus dem Massivbau und seinem Umfeld (Festschrift, Prof. Josef Eibl, zu seinem 60. Geburtstag), ed. by H.K. Hilsdorf and G. Kobler, Institut für Massivbau, Universität Karlsruhe, Germany, 295-307.

P134. Jennings, H.M., Xi, Y., Bažant, Z.P., Yang, M., and Neubauer, C. (1996). "Modelling and Materials Science of Cement-Based Materials: Recent Developments." in *The Modelling of Microstructure and Its Potential for Studying Transport Properties and Durability* (Proc. of RILEM Symp., Paris, 1995), ed. by H. Jennings, J. Kropp and K. Scrivener, Kluwer Academic Publishers, Dordrecht, 187-225.

P135. Bažant, Z.P., Hauggaard, A.B., and Baweja, S. (1996). "Microprestress solidification theory for aging and drying creep of concrete." in *Advances in Building and Materials Science* (Festschrift Wittmann), ed. by A. Gerdes (ETH, Zürich), Aedificatio Publishers, Freiburg, Germany, 111-130.

P136. Xi, Yunping, and Bažant, Z.P. (1996). "Analysis of crack propagation in concrete structures by Markov chain model and R-curve method." in *Probabilistic Mechanics and Structural Reliability* (Proc., 7th Specialty Conference, held at Worcester Polytechnic Institute, Worcester, Mass., Aug.), ed. by D.M. Frangopol and M.D. Grigoriu, ASCE, New York, 358-361.

P137. Bažant, Z.P., and Prat, P. (1996). "Fracture characteristics and micromechanical theory of rock as a quasibrittle material: Aperçu of recent advances" (keynote lecture) *Proc., 5th Int. Conf. on Rock Fragmentation by Blasting (FRAG-BLAST 5)* (held in Montreal), ed. by B. Mohanty, publ. by Balkema, Rotterdam, 3-12.

P138. Bažant, Z.P. (1996). "Mechanics of failure of materials and structures: An aperçu of problems and progress" (keynote lecture), Proc., Int. Conf. on *Design and Assessment of Building Structures* held at Czech Technical University, Prague, to commemorate 75th Anniversary of Klokner Institute. Ed. by M. Holický, Vol. II, pp. 1-17.

P139. Bažant, Z.P., Adley, M.D., and Xiang, Y. (1996). "Finite strain analysis of deformations of quasibrittle material during missile impact and penetration." in *Advances in Failure Mechanisms in Brittle Materials* (ASME Int. Mech. Engrg. Congress, Atlanta), MD-Vol 75/AMD-Vol. 219, ed. by R.J. Clifton and H.D. Espinosa, publ. by Am. Soc. of Mech. Engrs., New York, pp. 163-169.

P140. Bažant, Z.P. (1997). "Scaling in nonlinear fracture mechanics." in *Nonlinear Analysis of Fracture* (Proc. IUTAM Symp. held in Cambridge, U.K., in Sept.1995), ed. by J.R. Willis, Kluwer Academic Publishers, Dordrecht-Boston, pp. 1-12.

P141. Bažant, Z.P. (1997). "Size effect in quasibrittle compression fracture: some recent advances." *Advances in Fracture Research* (Proc., 9th Int. Conf. of Fracture, Sydney), B.I. Karahaloo et al., eds., 741-749.

P142. Bažant, Z.P. (1997). "Analysis of pore pressure, thermal stress and fracture in rapidly heated concrete." *Proc., Intern. Workshop on Fire Performance of High-Strength Concrete*, NIST Special Publication 919, L.T. Phan et al., eds., National Institute of Standards and Technology, Gaithersburg, Maryland, 155-164.

P143. Bažant, Z.P. (1998). "Modelling of compressive strain softening, fracture and size effect in concrete." *Constitutional Modelling of Concrete Structures* (EURO-C Conf., held in Badgastein, Austria), ed. R. de Borst et al., Balkema, Rotterdam, 249-264.

P144. Bažant, Z.P., Vitek, J.L. (1998). "Fracture and size effect in composite beams with deformable connectors." *Ibid.*, 839-848.

- P145. Bažant, Z.P., Jin, Weihua, and Meyer, C. (1998). "Micromechanical fracture analysis of ASR-induced damage in concrete with waste glass." *Engineering Mechanics: A Force for the 21st Century* (Proc. 12th Engrg. Mech. Conf.), held in La Jolla, CA, ed. H. Murakami and J.E. Luco, publ. by ASCE, Reston, VA, 48–51.
- P146. Bažant, Z.P., Ulm, F.-J., Beltoise, F. (1998). "Propagation of concentration jump interfaces as a rate-controlling mechanism of diffusion in concrete." *Ibid.*, 1150–1153.
- P147. Bažant, Z.P. (1998). "Compression fracture—mechanics of damage localization and size effect." *Material Instabilities in Solids* (Proc., IUTAM Symp., Delft, June 1997). Eds. R. de Borst and E. van der Giessen, J. Wiley, Chichester, U.K., 355–367.
- P148. Bažant, Z.P., and Prat, P.C. (1998). "Stress-strain relation for elastic material with many growing microcracks." *Fracture Mechanics of Concrete Structures* (3rd Int. Conf., FraMCoS-3, held in Gifu, Japan), H. Mihashi and K. Rokugo, eds., Aedificatio Publishers, Freiburg, Germany, Vol. 2, 1055–1064.
- P149. Bažant, Z.P., and Vítek, J.L. (1998). "Size effect in composite beams with deformable connections." *ibid.*, Vol. 3, 1537–1546.
- P150. Bažant, Z.P., Jinn, W., and Meyer, C. (1998). "Microfracturing caused by alkali-silica reaction of waste glass in concrete." *ibid.*, Vol. 3, 1687–1694.
- P151. Bažant, Z.P., and Becq-Giraudon, E. (1998). "Size effects in shear fracture of reinforced concrete beams." *ibid.*, Vol. 3, 2063–2074.
- P152. Bažant, Z.P. (1998). "Statistical and fractal aspects of size effect in quasibrittle structures." *Structural Safety and Reliability* (Proc., ICOSSAR'97, 7th Int. Conf. on Struct. Safety and Reliability, Kyoto 1997), N. Shiraiishi, M. Shinozuka and Y.K. Wen, eds., A.A. Balkema, Rotterdam, 1255–1262.
- P153. Bažant, Z.P. (1999). "Size effect in concrete structures: nuisance or necessity?" (plenary keynote lecture), in *Structural Concrete: The Bridge Between People*, Proc., fib Symp. 1999 (held in Prague), Fédération Internationale du Béton, publ. by Viacon Agency, Prague, pp. 43–51.
- P154. Bažant, Z.P., and Kim, Jang-Jay (1999). "Size effect in penetration fracture of sea ice plate: Review of theory and experimental evidence." *Ice in Surface Waters* (Proc., 14th Intern. Symp. on Ice, Clarkson College, Potsdam, NY, July 1998), H. T. Shen, Ed., Vol. 2, 1011–1018.
- P155. Bažant, Z.P. (2000). "Scaling laws for brittle failure of sea ice." *Preprints, IUTAM Symp. on Scaling Laws in Ice Mechanics* (Univ. of Alaska, Fairbanks, June), J.P. Dempsey, H.H. Shen and L.H. Shapiro, eds. Paper No. 3, pp. 1–23.
- P156. Bažant, Z.P. (2000). "Size effect in compression and tensile quasibrittle fracture." *J. of the Mechanical Behaviour of Materials* (Freund Publishing House, London) 11 (1–3), 7–12 (Special Issue, 2nd Eur. Conf. on Mater. Instab., Thessaloniki 1997, E. Aifantis, ed.).
- P157. Bažant, Z.P., and Baweja, S. (2000). "Creep and shrinkage prediction model for analysis and design of concrete structures: Model B3—short form." *Adam Neville Symposium: Creep and Shrinkage—Structural Design Effects*, ACI SP-194, A. Al-Manaseer, ed., Am. Concrete Institute, Farmington Hills, Michigan, 85–100.
- P158. Bažant, Z.P. (2000) "Criteria for rational prediction of creep and shrinkage of concrete." *Adam Neville Symposium: Creep and Shrinkage—Structural Design Effects*, ACI SP-194, A. Al-Manaseer, ed., Am. Concrete Institute, Farmington Hills, Michigan, 237–260 (reprinting of No. 387, with updates).
- P159. Bažant, Z.P., and Brocca, M. (2000). "Compressive failure, large-strain ductility and size effect in concrete: microplane model." *Proc., European Congress on Computational Methods in Applied Science and Engineering (ECCOMAS 2000)*, Barcelona, pp.1–19.
- P160. Bažant, Z.P., and Novák, D. (2000). "Energetic probabilistic size effect, its asymptotic properties and numerical applications." *Proc., European Congress on Computational Methods in Applied Science and Engineering (ECCOMAS 2000)*, Barcelona, pp.1–9.
- P161. Bažant, Z.P., and Brocca, M. (2000). "Failure of foam core sandwiches: numerical simulation by microplane model." *Mechanics of Sandwich Structures*. (ASME Congress, Orlando), AMD-Vol. 245 (and AD-Vol. 62), Y.D. Rajapakse, G.A. Kardomateas and V. Birman, eds., Am. Soc. of Mech. Engrs., New York, 51–68.
- P162. Bažant, Z.P., and Becq-Giraudon, E. (2001). "Estimation of fracture energy from basic characteristics of concrete." *Fracture Mechanics of Concrete Structures* (Proc., FraMCoS-4 Int. Conf., Paris), R. de Borst, J. Mazars, G. Pijaudier-Cabot and J.G.M. van Mier, eds., Swets & Zeitlinger (A.A. Balkema Publishers), Lisse, 491–495.
- P163. Carol, I., Jirásek, M., and Bažant, Z.P. (2001). "New thermodynamic framework for microplane model." *Fracture Mechanics of Concrete Structures* (Proc., FraMCoS-4 Int. Conf., Paris), R. de Borst, J. Mazars, G. Pijaudier-Cabot and J.G.M. van Mier, eds., Swets & Zeitlinger (A.A. Balkema Publishers), Lisse, 519–524.
- P164. Bažant, Z.P., Caner, F.C., and Červenka, J. (2001). "Vertex effect and confinement of fracturing concrete via microplane model M4." *Fracture Mechanics of Concrete Structures* (Proc., FraMCoS-4 Int. Conf., Paris), R. de Borst, J. Mazars, G. Pijaudier-Cabot and J.G.M. van Mier, eds., Swets & Zeitlinger (A.A. Balkema Publishers), Lisse, 497–504; reprinted with updates in *Concrete: Material Science to Application: A Tribute to Surendra Shah*, P. Balaguru, A. Naaman and J. Weiss, eds., SP-206, Am. Concrete Inst., 487–500.
- P165. Bažant, Z.P. (2001). "Size effects in quasibrittle fracture: Aperçu of recent results." *Fracture Mechanics of Concrete Structures* (Proc., FraMCoS-4 Int. Conf., Paris), R. de Borst, J. Mazars, G. Pijaudier-Cabot and J.G.M. van Mier, eds., Swets & Zeitlinger (A.A. Balkema Publishers), Lisse, 651–658.
- P166. Bažant, Z.P., and Novák, D. (2001). "Nonlocal Weibull theory and size effect in failures at fracture initiation." *Fracture Mechanics of Concrete Structures* (Proc., FraMCoS-4 Int. Conf., Paris), R. de Borst, J. Mazars, G. Pijaudier-Cabot and J.G.M. van Mier, eds., Swets & Zeitlinger (A.A. Balkema Publishers), Lisse, 659–664.
- P167. Bažant, Z.P., Červenka, J., and Wierer, M. (2001). "Equivalent localization element for crack band model as alternative to elements with embedded discontinuities." *Fracture Mechanics of Concrete Structures* (Proc., FraMCoS-4 Int. Conf., Paris), R. de Borst, J. Mazars, G. Pijaudier-Cabot and J.G.M. van Mier, eds., Swets & Zeitlinger (A.A. Balkema Publishers), Lisse, 765–772.
- P168. Bažant, Z.P., and Zi, G. (2001). "Spatial and temporal scaling of concrete response to extreme environments." *Concrete Under Severe Conditions* (Proc., 3rd Int. Conf., O. CONSEC'01), N. Banthia, K. Sakai and O.E. Gjorv, eds., University of British Columbia, Vancouver, BC, 3–10.
- P169. Cusatis, G., Bažant, Z.P., and Cedolin, L. (2001). "3D lattice model for dynamic simulations of creep, fracturing and rate effect in concrete." *Creep, Shrinkage and Durability Mechanics of Concrete and Other Quasi-Brittle Materials*.



(Proc., 6th Intern. Conf., CONCREEP-6, held at MIT, Cambridge), F.-J. Ulm, Z.P. Bažant and F.H. Wittmann, eds., Elsevier, Amsterdam 2001, 113–118.

P170. Bažant, Cedolin, L., and Cusatis, G. (2001). “Temperature effect on concrete creep modeled by microprestress-solidification theory.” *Creep, Shrinkage and Durability Mechanics of Concrete and Other Quasi-Brittle Materials*. (Proc., 6th Intern. Conf., CONCREEP-6, held at MIT, Cambridge), F.-J. Ulm, Z.P. Bažant and F.H. Wittmann, eds., Elsevier, Amsterdam 2001, 197–204.

P171. Zi, G., and Bažant, Z.P. (2001). “Continuous relaxation spectrum of concrete creep and its incorporation into microplane model M4.” *Creep, Shrinkage and Durability Mechanics of Concrete and Other Quasi-Brittle Materials*. (Proc., 6th Intern. Conf., CONCREEP-6, held at MIT, Cambridge), F.-J. Ulm, Z.P. Bažant and F.H. Wittmann, eds., Elsevier, Amsterdam 2001, 239–243.

P172. Bažant, Z.P., Zhou, Y., Novák, D., and Daniel, I.M. (2001). “Size effect in fracture of sandwich structure components: foam and laminate.” *Proc., ASME Intern. Mechanical Engrg. Congress* (held in New York), Vol. AMD-TOC (paper 25413), Am. Soc. of Mech. Engrs., New York, pp. 1–12.

P173. Bažant, Z.P. (2001). “Scaling laws for sea ice fracture.” *Proc., IUTAM Symp. on Scaling Laws in Ice Mechanics and Ice Dynamics* (held in Fairbanks, June 2000), ed. by J.P. Dempsey and H.H. Shen, Kluwer Academic Publ., Dordrecht, 195–206 (proceedings adaptation of preprint P155).

P174. Bažant, Z.P., and Novák, D. (2001). “Nonlocal model for size effect in quasibrittle failure based on extreme value statistics.” (Proc., 8th Int. Conf. on Structural Safety and Reliability (ICOSSAR), Newport Beach, Cal., 2001), R.B. Corotis, ed., Swets & Zeitinger (Balkema), 1–8.

P174'. Bažant, Z.P., and Yu, Q. (2001). “Choice of Concrete Fracture Test for a Standard.” NSF Workshop on Concrete Fracture Test Standard (handouts), organized by ACI Committee 446, Fracture Mechanics (K. Gerstle, chair), Capri, Florida (25 pp.).

P175. Bažant, Z.P., and Guo, Z. (2002). “Scaling of failure of floating sea ice plates.” *Proc., 15th ASCE Engrg. Mechanics Conf.*, Columbia University, New York, pp. 1–6.

P176. Novák, D., Bažant, Z.P., and Vítek, J.L. (2002). “Experimental-analytical size-dependent prediction of modulus of rupture of concrete.” *Non-Traditional Cement and Concrete* (Proc. of Int. Symp.), V. Bílek and Z. Keršner, eds., Brno University of Technology, 387–393.

P177. Novák, D., Bažant, Z.P. (2002). “Interaction of size effect and reliability of design: Case study of flexural strength of concrete.” *First Int. Conf. on Bridge Maintenance, Safety and Management* (Int. Assoc. IABMAS), Universitat Politècnica de Catalunya, Barcelona, 1–8.

P178. Bažant, Z.P. (2002). “Scaling of failure of composites.” *Proc., Intern. Symp. on Mechanics of Composites*, Czech Techn. University in Prague, M. Černý, ed., 5–14.

P179. Bažant, Z.P., and Novák, D. (2003). “Stochastic models for deformation and failure of quasibrittle structures: recent advances and new directions.” *Computational Modelling of Concrete Structures* (Proc., EURO-C Conf., St. Johann im Pongau, Austria), N. Bičanić, R. de Borst, H. Mang and G. Meschke, eds., A.A. Balkema Publ., Lisse, Netherlands, 583–598.

P180. Bažant, Z.P. (2003). “Shear buckling of sandwich plates: Resolution of a paradox.” *Contributions to computations and experimental investigation of engineering materials and structures* (dedicated to Prof. Z. Bittnar’s 60th birthday), P. Konvalinka and J. Máca, eds., Czech Technical University in Prague, 2003 (summary of No. 422).

P181. Novák, D., Bažant, Z.P., Vořechovský, M. (2003). “Computational modeling of statistical size effect in quasibrittle structures.” *Applications of Statistics and Probability in Civil Engineering* (Proc., 9th Int. Conf., ICASP-9, held in San Francisco), A. Der Kiureghian, S. Madanat and J. M. Pestana, eds., Millpress, Rotterdam, 621–628.

P182. Bažant, Z.P., and Beghini, A. (2003). “Shear buckling of fiber composites and sandwich structures: Paradox resolved.” *Proc., 14th Int. Conf. on Composite Materials, ICCM-14* (held in San Diego), 1–10.

P183. Bažant, Z.P. (2003). “Energetic and statistical size effects in fiber composites and sandwich structures. A précis of recent progress.” *Proc., 10th Int. Conf. on Composites/Nano Engineering (ICCE-10)*, D. Hui, ed., University of New Orleans, 869–872.

P184. Bažant, Z.P., Caner, F.C., Cedolin, L., Cusatis, G., and Di Luzio, G. (2004). “Fracturing material models based on micromechanical concepts: Recent advances.” *Fracture Mechanics of Concrete Structures* (Proc., FraMCoS-5, 5th Int. Conf. on Fracture Mech. of Concrete and Concr. Structures, Vail, Colo.), V.C. Li, K.Y. Leung, K.J. Willam, and S.L. Billington, eds., IA-FraMCoS, 153–162.

P185. Bažant, Z.P., and Yu, Q. (2004). “Size effect in concrete specimens and structures: New problems and progress.” *Fracture Mechanics of Concrete Structures* (Proc., FraMCoS-5, 5th Int. Conf. on Fracture Mech. of Concrete and Concr. Structures, Vail, Colo.), Vol. 1, V.C. Li, K.Y. Leung, K.J. Willam, and S.L. Billington, eds., IA-FraMCoS, 153–162.

P186. Bažant, Z.P., Pang, S.D., Vořechovský, M., Novák, D. and Pukl, R. (2004). “Statistical size effect in quasibrittle materials: Computation and extreme value theory.” *Fracture Mechanics of Concrete Structures* (Proc., FraMCoS-5, 5th Int. Conf. on Fracture Mech. of Concrete and Concr. Structures, Vail, Colo.), V.C. Li, K.Y. Leung, K.J. Willam, and S.L. Billington, eds., IA-FraMCoS, 153–162.

P187. Bažant, Z.P. (2004). “Durability modeling based on fracture, diffusion, chemomechanics and creep.” (keynote plenary lecture) *Concrete under Severe Conditions: Environment and Loading* (Proc., 4th int. Conf., CONSEC’04, Seoul), B.H. Oh, ed., Seoul National University, Seoul, Korea, 3–16.

P187a. Bažant, Z.P., and Beghini, A. (2004). “Energetic-Statistical Size Effect in Composites and Sandwich Structures.” *em Advances in Computational & Experimental Engineering Science* (Proc. of Int. Conf., ICCES’04, in Madeira), S.N. Atluri, A.J.B. Tadeu, Eds., Tech Science Press, 327–332.

P188. Vořechovský, M., Bažant, Z.P., and Novák, D. (2005). “Procedure of statistical size effect prediction for crack initiation problems.” *Proc. (CD) 11-th Int. Conf. on Fracture* (ICF-11, held in Turin, Italy), A. Carpinteri, ed., Paper 40-6-1, pp. 1–6.

P189. Bažant, Z.P., and Pang, S.-D. (2005). “Revision of Reliability Concepts for Quasibrittle Structures and Size Effect on Probability Distribution of Structural Strength.” *Safety and Reliability of Engrg. Systems and Structures* (CD) (Proc., 8th Int. Conf. on Structural Safety and Reliability, ICOSSAR 2005, held in Rome), G. Augusti, G.I. Schuëller and M. Ciampoli, eds., Millpress, Rotterdam, pp. 377–386.

P190. Bažant, Z.P., Vořechovský, M., and Novák, D. (2005). “Role of deterministic and statistical length scales in size effect for quasibrittle failure at crack initiation.” *ibid.*, pp. 411–415.

P191. Bažant, Z.P., Pang, S.-D., and Grassl, P. (2005). “Reliability of fracturing concrete structures and challenges of stochastic finite element modeling.” *Computational Plasticity* (Proc., 8th Int. Conf. on Computational Plasticity—COMPLAS 8, held at UPC, Barcelona), D.R.J. Owen, E. Oñate and B. Suárez, eds., pp. 156–159.

- P192. Bažant, Z.P., and Cusatis, G. (2005). "Concrete at high temperature and its interaction with fracture: Recent progress." *Creep, Shrinkage and Durability of Concrete and Concrete Structures* (Proc., 7th Int. Conf.—CONCREEP 7, held in Nantes, France), G. Pijaudier-Cabot, B. Gérard and P. Acker, eds., Hermes Science Publishing, London, pp. 449–460.
- P193. Krístek, V., Bažant, Z.P., Zich, M., and Kohoutková, A. (2005). "Why is the initial trend of deflections of box girder bridges deceptive?" *ibid.*, pp. 293–298.
- P194. Bažant, Z.P. (2005). "Rozměrový efekt, jeho podíl na případech katastrofického zhroutení konstrukcí a důsledky pro návrhové normy" (Size effect, its role in structural collapses and consequences for design codes), Proc., 12. *Betonářské dny (12<sup>th</sup> Concrete Days)*, Česká betonářská společnost ČSSI (Czech Concrete Society), Hradec Králové, Czech Republic, pp. 17–36.
- P195. Bažant, Z.P., and Pang, S.-D. (2005). "Effect of size on safety factors and strength of quasibrittle structures: Beckoning reform of reliability concepts." *Proc., The Structural Engineering Convention (SEC 2005)*, J.M. Chandra Kishen & D. Roy, eds., Indian Institute of Science, Bangalore, India, pp. 2–20.
- P196. Bažant, Z.P., and Pang, S.-D. (2006). "Computational structural reliability – a major challenge and opportunity for concrete and other quasibrittle materials." *Computational Modeling of Concrete Structures* (Proc., EURO-C, held in Mayrhofen, Austria), G. Meschke, R. de Borst, H. Mang and N. Bićanić, eds., Taylor & Francis, London, pp. 845–856.
- P197. Cusatis, G., and Bažant, Z.P. (2006). "Size effect on compression fracture of concrete with or without V-notches: a numerical mesomechanical study." *ibid.*, pp. 71–83.
- P198. Grassl, P., Bažant, Z.P., and Cusatis, G. (2006). "Lattice-cell approach to quasibrittle fracture modeling." *ibid.*, pp. 263–268.
- P199. Bažant, Z.P., and Grassl, P. (2006). "Size effect of cohesive delamination fracture triggered by sandwich skin wrinkling." *Marine Composites and Sandwich Structures* (Proc., ONR Solid Mechanics Program Annual Review Meeting, Y.D.S. Rajapakse, ed., University of Maryland, pp. 12–20.
- P200. Caner, F.C., Guo, Z.Y., Moran, B., Bažant, Z.P., Carol, I. (2006). "On Hyperelastic Constitutive Modeling of Annulus Fibrosus." *Proc., 5th World Congress of Biomechanics* (held in Munich), D. Leipsch, ed. MEDIMOND, Bologna, pp. 107–114.
- P201. Bažant, Z.P., and Le, Jia-Liang (2007). "Probabilistic mechanics of scaling strength, lifetime and safety factors of quasibrittle structures: nano to macro." *Proc., 8<sup>th</sup> HSTAM International Congress of Mechanics*. (Hellenic Soc. of Theor. & Appl. Mech.), Univ. of Patras, Greece, N. Bazeos, D.L. Karabalis, D. Polyzos, D.E. Beskos, J.T. Katsikadelis, eds., pp. 1–10.
- P202. Bažant, Z.P. (2007). "Mechanics based prediction of structure size and geometry effects on safety factors for composites and other quasibrittle materials." *Proc., 48th AIAA/ASME/ASCE/AHS/ASE Structures, Structural Dynamics and Materials Conference* (Honolulu, Hawaii), Am. Inst. of Aeronautics and Astronautics, pp. 1–15.
- P203. Bažant, Z.P., and Yu, Q. (2007). "Consequences of ignoring or mis-judging the size effect in concrete design codes and practice". *Proc., 3rd Structural Engineers World Congress*, Bangalore, India, Nov. (a slightly expanded version was published, with authorization, as article 473).
- P204. Bažant, Z.P., Caner, F.C., Le, J.-L., and Yu, Q. (2008). "Size effect on strength of hybrid metal-compojoints", *AIAA/ASME/ASCE/AHS/ASE Structures, Structural Dynamics and Materials Conference* (Schaumburg, Illinois), Am. Inst. of Aeronautics and Astronautics, Paper AIAA 2008-2093 (pp. 1–11).
- P205. Bažant, Z.P., Le, J.-L., and Bazant, M.Z. (2008). "Size effect on strength and lifetime distributions of quasibrittle structures implied by interatomic bond break activation." *Proc., 17th European Conference on Fracture (ECF-17)*, held at Technical University Brno, Brno, Czech Rep., J. Pökluda et al., eds., pp. 78–92.
- P206. Bažant, Z.P., Li, G.-H., and Yu, Q. (2008). "Prediction of creep and shrinkage and their effects in concrete structures: Critical appraisal." *Creep, Shrinkage and Durability Mechanics of Concrete and Concrete Structures* (Proc., 8th Int. Conf. – CONCREEP-8, held in Ise-Shima, Japan, Sept. 2 - Oct. 2), T. Tanabe et al. eds., CRC Press/Balkema, Taylor & Francis Group, Boca Raton–London, pp. 1275–1289.
- P207. Krístek, V., Vráblík, L., Bažant, Z.P., Li, G.-H., and Yu, Q. (2008). "Misprediction of long-time deflections of prestressed box girders: Causes, remedies and tendon lay-out effect." *ibid.*, pp. 1291–1295.
- P208. Bažant, Z.P., Le, J.-L. (2008). "Recent progress in energetic probabilistic scaling laws for quasi-brittle fracture." *Proc., IUTAM Symp. on Scaling in Solid Mechanics* (held at the University of Cardiff, UK, June), Springer, pp. 135–143.
- P209. Bažant, Z.P., Yu, Q., Li, G.-H., and Cusatis, G. (2009). "Modeling of creep and hygrothermal deformations of concrete, and consequences of nano-porosity" (Biot lecture) *Poromechanics IV*, Proc. of 4th Biot Conf. on Poromechanics, Columbia University New York, DEStech Publications, NY, H.I. Ling, A. Smyth and R. Betti, eds., 3–16.
- P210. Bažant, Z.P., and Le, Jia-Liang (2009). "Size effect on strength and lifetime distributions of quasibrittle structures." *Proc., ASME 2009 Int. Mech. Engrg. Congress (IMECE2009)*, Lake Buena Vista, Florida, pp. 1–9.
- P211. Bažant, Z.P., and Yu, Q. (2010). "Modeling of concrete creep and hygrothermal deformations, and computation of their structural effects." *Computational Modeling of Concrete Structures* (plenary lecture, EURO-C Conf., Schladming/Rohrmoos, Austria). N. Bićanić et al., eds., Taylor & Francis, London, pp. 3–13.
- P212. Bažant, Z.P., Wu, J.-Y., Caner, F.C., Cusatis, G. (2010). "How to enforce non-negative energy dissipation in microplane and other constitutive models of softening damage, plasticity and friction." *Computational Modeling of Concrete structures* (EURO-C Conf., Schladming/Rohrmoos, Austria). N. Bićanić et al., eds., Taylor & Francis, London, pp. 87–91.
- P213. Bažant, Z.P., and Le, Jia-Liang (2010). "Statistical aspects of quasibrittle size effect and lifetime, with consequences for safety and durability of large structures." in *Fracture Mechanics of Concrete and Concrete Structures—Recent Advances in Fracture Mechanics of Concrete* (Proc., FraMCoS-7, 7th Int. Conf. held in Jeju, Korea, plenary lecture), B.-H. Oh, ed., publ. by Korea Concrete Institute, Seoul, pp. 1–8.
- P214. Bažant, Z.P., Le, Jia-Liang and Hoover, C.G. (2010). "Nonlocal boundary layer (NBL) model: overcoming boundary condition problems in strength statistics and fracture analysis of quasibrittle materials," *ibid.*, pp. 135–143.
- P215. Bažant, Z.P., Yu, Q., Cusatis, G., Cedolin, L., and Jirásek, M. (2010). "Misconception on variability of fracture energy, its uniaxial definition by work of fracture, and its presumed dependence on crack length and specimen size," *ibid.*, pp. 29–37.
- P216. Bažant, Z.P., Yu, Q., Hubler, M., Krístek, V., and Bittnar, Z. (2011). "Wake-up call for creep, myth about size effect and black holes in safety: What to improve in *fib* model code draft." *Concrete Engineering for Excellence and Efficiency* (Proc., *fib* Symp. Prague, Topic 3 Keynote Lecture)

(ISBN 978-87158-26-7), pp. 731–746 (republished as book chapter in 516).

P217. Bažant, Z.P., Yu, Q., Kim, K.-T., Hubler, M., Šmilauer, V., Vráblik, Lepš, M., and Krístek, V. (2011). “Excessive multi-decade deflections of prestressed concrete bridges: How to avoid them and how to exploit their monitoring to improve creep prediction model”. *ibid.*, pp. 827–834.

P218. Le, Jia-Liang, and Bažant, Z.P. (2011). “Size effect on probability distribution of fatigue lifetime of quasibrittle structures.” *Applications of Statistics and Probability in Civil Engineering* (Proc., 11th Intern. Conf., ACSP-11, held in Zürich), Faber, Köhler & Nishijima, eds., Taylor & Francis, London, 1291–1298 (ISBN 978-0-415-66986-3).

P219. Caner, F.C., Bažant, Z.P. (2011). “Microplane model M6f for fiber reinforced concrete”. *Proc., XI<sup>th</sup> Int. Conf. on Computational Plasticity. Fundamentals and Applications (COMPLAS XI)* (held at UPC Sept. 2011, Barcelona), E. Oate, D.R.J. Owen, D. Peric and B. Sures, eds., publ. by CIMNE/UPC, Barcelona (12pp.).

P220. Eliáš, J. and Bažant, Z.P. (2011). “Fracturing of concrete via lattice-particle model”. *Proc., Int. Conf. on Particle-Based Methods—Fundamentals and Applications (PARTICLES 2011)*, E. Oñate and D.R.J. Owen, eds; pp. 1–12.

P221. Eliáš, J., Vořechovský, M., and Bažant, Z.P. (2013). “Stochastic lattice simulations of flexural failure in concrete beams.” *Proc., 8<sup>th</sup> Int. Conf. on Fracture Mechanics of Concrete and Concrete Structures (FraMCoS-8, held in Toledo)*, J.G.M. van Mier et al., eds., publ. by CIMNE, Barcelona, pp. 1–12.

P222. Bažant, Z.P., Hubler, H.H., Salviato, M. and Le, J.-L. (2013). “Scaling of Failure Probability of Quasibrittle Structures with Large Cracks.” *Proc., Int. Conf. on Struct. Safety and Reliability (ICOSSAR)* (held at Columbia Univ., New York (June)), pp.

P223. Bažant, Z.P., Caner, F.C. (2014). “Comminution of concrete due to kinetic energy of high shear strain rate.” *Computational Modeling of Concrete Structures* (plenary lecture, Proc., EURO-C held in St. Anton, Austria), N. Bićanić et al. eds., Taylor and Francis, pp. 3–7.

P224. Salviato, M., Kirane, K., and Bažant, Z.P. (2014). “Statistical distributions of size effect of residual strength after a period of sustained load.” *ibid.*, pp. 423–427.

P225. Wendner, R., Hubler, M.H., and Bažant, Z.P. (2014). “Multi-decade creep and shrinkage prediction of traditional and modern concretes.” *ibid.*, pp. 679–684.

P226. Bažant, Z.P., Havlásek, P., and Jirásek, M. (2014). “Microprestress-solidification theory: Modeling of size effect on drying creep.” *ibid.*, pp. 749–758.

P227. Buscarnera, G., Cusatis, G., Zubelewicz, A. and Bažant, Z.P. (2014), “Shale fracturing for energy recovery; current issues and review of available analytical and computational models.” *Proc., ASCE Shale Energy Engineering Conference*, C.L. Meehan et al., eds., Pittsburgh, PA, pp. 168–199.

P228. Bažant, Z.P., and Caner, F.C. (2014). “Comminution of solids due to kinetic energy of high shear strain rate: Implications for shock and shale fracturing.” *ibid.*, pp. 144–150.

P229. Bažant, Z.P., Donmez, A., Masoero, E., Rahimi Aghdam, S. (2015). “Interaction of concrete creep, shrinkage and Swelling with Water, Hydration and Damage: Nano-Macro-Chemo.” *Proc., CONCREEP-10* (10<sup>th</sup> Int. Conf. on Mechanics and Physics of Creep, Shrinkage and Durability of Concrete and Concrete Structures, held in Vienna, Austria, Sept.), publ. by ASCE, Washington, D.C., pp. 1–10 (plenary lecture).

P230. Vandamme, M., Bažant, Z.P., and Keten, S. (2015). “Numerical study of the creep of slit nanopore: role of water.” *ibidem*, pp. 313–317.

## Discussions and Rebuttals in Journals

Over 60 items