

YONGGANG YOUNG HUANG

Department of Civil and Environmental Engineering
and Department of Mechanical Engineering
Northwestern University

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Education:

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| Ph.D. | Engineering Science | Harvard University | 1990 |
| S.M. | Engineering Science | Harvard University | 1987 |
| B.S. | Mechanics | Peking University | 1984 |

Professional Experience:

8/07-present Joseph Cummings Professor
Departments of Civil and Environmental Engineering and Mechanical Engineering
Northwestern University

8/04-8/07 Shao Lee Soo Professor
8/03-8/04 Grayce Wicall Gauthier Professor
8/01-8/03 Professor
8/98-8/01 Associate Professor
Department of Mechanical and Industrial Engineering
University of Illinois at Urbana-Champaign

8/95-8/98 Associate Professor
Department of Mechanical Engineering - Engineering Mechanics
Michigan Technological University

8/91-7/95 Assistant Professor
Department of Aerospace and Mechanical Engineering
The University of Arizona

6/90-7/91 Postdoctoral Research Fellow
(for Drs. B. Budiansky and J. R. Rice)
Division of Applied Science, Harvard University

6/87-5/90 Research Assistant
(for Dr. J. W. Hutchinson)
Division of Applied Science, Harvard University

Visiting Positions:

6/08-5/11 Guangbiao Chair Professor

Department of Mechanics
Zhejiang University, Hangzhou, China

6/07-5/08 Tang Yongqian Chair Professor

Department of Mechanics
Zhejiang University, Hangzhou, China

12/06-1/07 Royal Society Kan Tong Po Visiting Professor

Department of Mechanical Engineering, The University of Hong Kong

8/05-8/06 Visiting Clark Millikan Professor

Graduate Aeronautical Laboratories, California Institute of Technology

3/05-2/08 ChangJiang Chair Professor

Department of Engineering Mechanics, Tsinghua University, Beijing, China

Editors:

Editorial Board, International Journal of Plasticity, 2002-.

Regional Editor and Member of the Editorial Board, International Journal of Fracture, 2004-.

Guest Editor, Special Issue on Mechanics and Mechanical Properties of Carbon Nanotubes, Journal of Engineering Materials and Technology (ASME Transactions), v 124, 2004.

Associate Editor, Acta Mechanica Sinica, 2005-.

Associate Editor, Journal of Applied Mechanics, 2005-.

Editorial Board, Journal of Computational and Theoretical Nanoscience, 2006-.

Editorial Board, Recent Patents in Engineering, 2006-.

Editorial Board, Interaction and Multiscale Mechanics: an International Journal, 2007-.

Editorial Board, Acta Mechanica Solida Sinica, 2007-.

Editorial Board, Advances in Theoretical and Applied Mechanics, 2008-.

Editorial Board, International Journal of Mechanics, 2008-.

Awards and Honors (Research):

ALCOA Foundation Faculty Award, ALCOA Foundation, 1995, 1996

National Science Foundation Junior Investigator Fellowship, 1995

Motorola Foundation Faculty Award, Motorola Foundation, 1997.

Ford Foundation Faculty Award, Ford Foundation, 1998.

Outstanding Young Investigator Award, National Science Foundation of China, 2000.

Research Award for US Scientists and Scholars, Alexander von Humboldt Foundation, Germany, 2001.

Associate, Center for Advanced Study, University of Illinois at Urbana-Champaign, 2002 (award to 10 most talented and productive members of tenured faculty each year).

Faculty Fellow, National Center for Supercomputing Applications/UIUC, Urbana, Illinois, 2002.

Member, Working Party on Nano- and Micro-Scale Phenomena in Mechanics, International Union of Theoretical and Applied Mechanics, 2003-present (4 members selected worldwide).

Gustus L. Larson Memorial Award, American Society of Mechanical Engineers and Pi Tau Sigma (National Mechanical Engineering Honor Society), 2003 (**one award each year for outstanding achievement in mechanical engineering between ten and twenty years after graduation**).

Grayce Wicall Gauthier Professor, Department of Mechanical and Industrial Engineering, University of Illinois at Urbana-Champaign, 2003-2004.

Shao Lee Soo Professor, Department of Mechanical and Industrial Engineering, University of Illinois at Urbana-Champaign, 2004-2007.

George W. Melville Medal, American Society of Mechanical Engineers, 2004 (**the highest ASME honor for the best original paper which has been published in the ASME Transactions during the two calendar years immediately preceding the year of award**).

Chang Jiang Chair Professor, Department of Engineering Mechanics, Tsinghua University, Beijing, China, 2005-2008.

Lecturer, Southwest Mechanics Lecture Series, 2005.

Visiting Clark Millikan Professor, California Institute of Technology, 2005-2006

SES Young Investigator Medal, Society of Engineering Science, 2006 (**for high impact of research work in engineering science within 15 years of terminal degree**).

Outstanding Overseas Investigator Award, Chinese Academy of Science, 2006.

Paper on stretchable silicon published in Science (January 13, 2006) selected for one of “**10 Technologies That Will Change the World**” by MIT’s Technology Review Magazine, 2006.

Work on stretchable silicon on museum display in “**The Tech Museum of Innovation**”, San Jose, California, since October 1, 2006.

Royal Society Kan Tong Po Visiting Professor, The University of Hong Kong, 2006-2007.

International Journal of Plasticity Medal, 2007 (**for making outstanding contribution over any five-year period to the field of plasticity**).

Yongqian Tang Visiting Professor, Zhejiang University, Hangzhou, China, 2007.

Joseph Cummings Professor, Northwestern University, Evanston, Illinois, 2007-present.

Guangbiao Visiting Professor, Zhejiang University, Hangzhou, China, 2008-2010.

Guggenheim Fellowship, John Simon Guggenheim Memorial Foundation, 2008.

Awards and Honors (Teaching):

Wakonse Fellow (the only one in College of Engineering and Mines, The University of Arizona), 1993, awarded by the University of Arizona for commitment to excellence in teaching.

Most Supportive Junior Faculty Member, voted by exit senior, Department of Aerospace and Mechanical Engineering, The University of Arizona, 1993.

Faculty advisor of the “Human-Powered Vehicle” design group, which won the **First Prize** in the national competition at University of California at Davis, May, 1994, sponsored by the American Society of Mechanical Engineers.

Faculty advisor of the “Mini-Hydroplane” design group, which received the **Best Design Award** (among 15 groups), Department of Aerospace and Mechanical Engineering, University of Arizona, May, 1994.

Faculty advisor of the “Corn Roaster” design group, which received the **Best Design Award** (among 14 groups), Department of Aerospace and Mechanical Engineering, University of Arizona, May, 1995.

On the “**Incomplete List of Teachers Ranked as Excellent by Their Students**” (top 10% teachers), University of Illinois at Urbana-Champaign, Spring 2003.

On the “**Incomplete List of Teachers Ranked as Excellent by Their Students**” (top 10% teachers), University of Illinois at Urbana-Champaign, Spring 2004.

Co-advisor of Ph.D. student H. Jiang (Tsinghua University), whose dissertation received the “**National Excellent Doctoral Dissertation Award**”, China, 2004.

On the “**Incomplete List of Teachers Ranked as Excellent by Their Students**” (top 10% teachers), University of Illinois at Urbana-Champaign, Fall 2004.

On the “**Incomplete List of Teachers Ranked as Excellent by Their Students**” (top 10% teachers), University of Illinois at Urbana-Champaign, Spring 2005.

On the “**Incomplete List of Teachers Ranked as Excellent by Their Students**” (top 10% teachers), University of Illinois at Urbana-Champaign, Fall, 2006.

On the “**Incomplete List of Teachers Ranked as Excellent by Their Students**” (top 10% teachers), University of Illinois at Urbana-Champaign, Spring 2007.

“**Engineering Council Award for Excellence in Advising**” (top 10% engineering advisors), College of Engineering, University of Illinois at Urbana-Champaign, April, 2007.

Awards and Honors (Service):

Faculty advisor of the Illinois chapter of Pi Tau Sigma Society (Mechanical Engineering Honors Society), which received the national “**Outstanding Service Award**”, 2001 (7 awards out of 160 chapters in the States).

Endowed Lectures and Plenary/Keynote Lectures at international conferences

Plenary Lecture, International Congress of Fracture, Sydney, Australia, April, 1997.

Keynote Lecture, International Symposium of Failure Mechanics, Beijing, China, May, 1997.

Keynote Lecture, Motorola Corporate Engineering Council, Chicago, June, 1997.

Keynote Lecture, International Symposium on Advances in Solid Mechanics, Beijing, China, July, 1997.

Plenary Lecture, International Conference on Fracture and Strength of Solids, Hong Kong, December, 1997.

Keynote Lecture, Symposium of “Gradient Plasticity and Its Applications”, ASME Applied Mechanics Division Summer Meeting, Virginia Tech, Virginia, June, 1999.

Keynote Lecture, International Conference on Numerical Methods in Industrial Forming Processes, Ohio State University, Columbus, Ohio, June, 2004.

Plenary Lecture, International Conference on Scientific and Engineering Computation, Singapore, June, 2004.

Plenary Lecture, International Conference on Fracture and Damage of Advanced Materials, Hangzhou, Zhejiang, China, August, 2004.

Keynote Lecture, International Conference on Fracture and Damage of Advanced Materials, Hangzhou, Zhejiang, China, August, 2004.

Keynote Lecture, US National Conference on Computational Mechanics, Austin, Texas, July, 2005.

Keynote Lecture, Instrumented Indentation Testing in Materials Research and Development Conference, Crete, Greece, October, 2005.

Keynote Lecture, US National Congress on Theoretical and Applied Mechanics, Colorado Spring, Colorado, June, 2006.

Keynote Lecture, World Congress on Computational Mechanics, Los Angeles, California, July, 2006.

Keynote Lecture, International Symposium on Plasticity, Halifax, Nova Scotia, Canada, July, 2006.

Keynote Lecture, Multiscale & Functionally Graded Materials Conference, Honolulu, Hawaii, October, 2006.

Keynote Lecture, ASME Winter Annual Meeting, Chicago, Illinois, November, 2006.

Keynote Lecture, International Conference on Computational and Experimental Engineering and Science, Miami Beach, Florida, January, 2007.

Distinguished Lecture, Hong Kong Society of Theoretical and Applied Mechanics, Hong Kong, January, 2007.

Royal Society Kan Tong Po Lecture (and also the **College of Engineering Distinguished Lecture**), The University of Hong Kong, Hong Kong, January, 2007.

Distinguished Lecture, McMaster Manufacturing Research Institute, McMaster University, Hamilton, Ontario, Canada, January, 2007.

Keynote Lecture, International Symposium on Plasticity, Anchorage, Alaska, June, 2007.

Yongqian Tang Lecture, Zhejiang University, Hangzhou, China, August, 2007.

Plenary Lecture, International Conference on Fracture and Strength of Solids, Urumqi, China, August, 2007.

Keynote Lecture, Workshop on Flexible and Stretchable Electronics, Belgium, September, 2007.

Keynote Lecture, Symposium on Mechanics of Micro/Nano Structures on Soft Substrates: Applications for Flexible and Stretchable Electronics, Society of Engineering Science Conference, Texas A&M University, College Station, Texas, October, 2007.

Keynote Lecture, Symposium on Plasticity and Damage Size Effects at the Micron and Nano Length Scales, Society of Engineering Science Conference, Texas A&M University, College Station, Texas, October, 2007.

Keynote Lecture, International Symposium on Plasticity, Kona, Hawaii, January, 2008.

Guangbiao Lecture, Zhejiang University, Hangzhou, China, June, 2008.

Keynote Lecture, Virtual Conference on Nanoscale Science and Technology, July, 2008.

Books

- 1 Hwang KC and Huang Y, *The Constitutive Relation of Solids*, Tsinghua University Press, Beijing, 1999.

Book Chapters: 23 book chapters

Publications (Refereed Journal Articles):

- 1 Yuan M, Huang Y, and Lan D, "Elastic curved beams in space structures," *Engineering Mechanics*, v 2, pp 64-75, 1985.
- 2 Zhu G, Huang Y, Yu TX, and Wang R, "Estimation of the plastic structural response under impact," *International Journal of Impact Engineering*, v 4, pp 271-282, 1986.
- 3 Huang Y and Wu J, "The mechanical analysis of a senseless feeler," *Mechanics and Practice*, v 9, pp 14-18, 1987.
- 4 Li Q and Huang Y, "Dynamic plastic response of circular plate under step loading," *Explosion and Shock Waves*, v 7, pp 134-139, 1987.
- 5 Wu J and Huang Y, "On the stability of elastic curved bars," *Acta Mechanica Sinica*, v 3, pp 326-334, 1987.
- 6 Huang Y, "The convergent solution of clamped rectangular plate," *Acta Mechanica Solida Sinica*, v 9, pp 165-169, 1988.
- 7 Huang Y and Hu H, "A model for constraint-dependent critical load," *Acta Scientiarum Naturalium, Universitatis Pekinensis*, v 24, pp 95-100, 1988.
- 8 Li Q and Huang Y, "Dynamic plastic response of thin circular plates with transverse shear and rotatory inertia subjected to rectangular pulse loading," *International Journal of Impact Engineering*, v 8, pp 219-228, 1989.
- 9 Li Q and Huang Y, "Dynamic plastic response of circular plates with transverse shear," *Journal of Applied Mechanics (ASME Transactions)*, v 57, pp 1077-1078, 1990.
- 10 Shum DKM and Huang Y, "Fundamental solutions for microcracking induced by residual stress," *Engineering Fracture Mechanics*, v 37, pp 107-117, 1990.
- 11 Huang Y, "Accurate dilatation rate for spherical voids in triaxial stress fields," *Journal of Applied Mechanics (ASME Transactions)*, v 58, pp 1084-1086, 1991.
- 12 Huang Y, Hutchinson JW, and Tvergaard V, "Cavitation instabilities in elastic-plastic solids," *Journal of the Mechanics and Physics of Solids*, v 39, pp 223-241, 1991.
- 13 Tvergaard V, Huang Y, and Hutchinson JW, "Cavitation instabilities in a power hardening elastic-plastic solid," *European Journal of Mechanics, A/Solids*, v 11, pp 215-231, 1992.

- 14 Wright SC, Huang Y, and Fleck NA, "Deep penetration of polycarbonate by a cylindrical indenter," *Mechanics of Materials*, v 13, pp 277-284, 1992.
- 15 Hu KX, Chandra A, and Huang Y, "Fundamental solutions for dilute distributions of inclusions embedded in microcracked solids," *Mechanics of Materials*, v 16, pp 281- 294, 1993.
- 16 Hu KX, Chandra A, and Huang Y, "Multiple void-crack interaction," *International Journal of Solids and Structures*, v 30, pp 1473-1489, 1993.
- 17 Hu KX and Huang Y, "A microcracked solid reinforced by rigid-line fibers," *Composites Science and Technology*, v 49, pp 145-151, 1993.
- 18 Hu KX and Huang Y, "Estimation of the elastic properties of fractured rock masses," *International Journal of Rock Mechanics and Mining Science & Geomechanics Abstracts*, v 30, pp 381-394, 1993.
- 19 Huang Y, "The role of nonuniform particle distribution on plastic flow localization," *Mechanics of Materials*, v 16, pp 265-280, 1993.
- 20 Huang Y, Hu KX, and Chandra A, "The effective elastic moduli of microcracked composite materials," *International Journal of Solids and Structures*, v 30, pp 1907- 1918, 1993.
- 21 Hu KX, Chandra A, and Huang Y, "On crack, rigid-line fiber, and interface interactions," *Mechanics of Materials*, v 19, pp 15-28, 1994.
- 22 Hu KX, Chandra A, and Huang Y, "On interacting bridged-cracks systems," *International Journal of Solids and Structures*, v 31, pp 599-611, 1994.
- 23 Huang Y and Hu KX, "Elastic moduli of microcracked composite material containing spherical inclusions with cubic anisotropy," *Composites Science and Technology*, v 50, pp 149-156, 1994.
- 24 Huang Y, Hu KX, and Chandra A, "A generalized self-consistent mechanics method for microcracked solids," *Journal of the Mechanics and Physics of Solids*, v 42, pp 1273-1291, 1994.
- 25 Huang Y, Hu KX, and Chandra A, "A self-consistent mechanics method for solids containing inclusions and a general distribution of cracks," *Acta Mechanica*, v 105, pp 69-84, 1994.
- 26 Huang Y, Hu KX, and Chandra A, "Several variations of the generalized self-consistent method for hybrid composites," *Composites Science and Technology*, v 52, pp 19-27, 1994.

- 27 Huang Y, Hu KX, Wei X, and Chandra A, "A generalized self-consistent mechanics method for a composite with multi-phase inclusions," *Journal of the Mechanics and Physics of Solids*, v 42, pp 491-504, 1994.
- 28 Huang Y and Zhang HW, "Finite element study of an interface crack between an elastic-perfectly plastic solid and a rigid substrate," *International Journal of Fracture*, v 68, pp 35-44, 1994.
- 29 Huang Y, Zhang HW, and Wu F, "Multiple cracking in metal-ceramic laminates," *International Journal of Solids and Structures*, v 31, pp 2753-2768, 1994.
- 30 Zhang HW and Huang Y, "Asymptotic tensile crack-tip stress fields in elastic-perfectly plastic crystals," *International Journal of Fracture*, v 69, pp 133-142, 1994.
- 31 Chandra A, Hu KX, and Huang Y, "A hybrid BEM formulation for multiple cracks in orthotropic elastic components," *Computers and Structures*, v 56, pp 785-797, 1995.
- 32 Chandra A, Huang Y, Wei X, and Hu KX, "A hybrid micro-macro BEM formulation for micro-crack clusters in elastic components", *International Journal of Numerical Methods in Engineering*, v 38, pp 1215-1236, 1995.
- 33 Hu KX, Huang Y, and Chandra A, "Bridging toughening in fiber-reinforced composites: A three-dimensional discrete fiber model", *Acta Metallurgica et Materialia*, v 43, pp 2743-2751, 1995.
- 34 Huang Y, "Tensile crack tip stress fields in elastic-perfectly plastic crystals," *Journal of Applied Mechanics (ASME Transactions)*, v 62, pp 238-240, 1995.
- 35 Huang Y and Hu KX, "A generalized self-consistent mechanics method for solids containing elliptical inclusions," *Journal of Applied Mechanics (ASME Transactions)*, v 62, pp 566-572, 1995.
- 36 Huang Y, Hu KX, and Chandra A, "Stiffness evaluation for solids containing dilute inclusions and microcracks," *Journal of Applied Mechanics (ASME Transactions)*, v 62, pp 71-77, 1995.
- 37 Huang Y and Hwang KC, "A unified energy approach to a class of micromechanics models for microcracked solids," *Acta Mechanica Solida Sinica*, v 8, pp 110-120, 1995.
- 38 Huang Y, Hwang KC, Hu KX, and Chandra A, "A unified energy approach to a class of micromechanics models for composite materials," *Acta Mechanica Sinica*, v 11, pp 59-75, 1995.
- 39 Huang Y and Zhang HW, "The role of metal plasticity and interfacial strength in the cracking of metal/ceramic laminates," *Acta Metallurgica et Materialia*, v 43, pp 1523-1530, 1995.

- 40 Huang Y, Zhu XK, and Hwang KC, "On the possibility of strong discontinuity for dynamic crack propagating in compressible elastic-perfectly plastic material", *Acta Mechanica Solida Sinica*, v 8, pp 188-194, 1995.
- 41 Liu C, Huang Y, and Rosakis AJ, "Shear dominated transonic crack growth in a bimaterial - Part II: An analytical investigation of asymptotic fields and favorable velocity regimes," *Journal of the Mechanics and Physics of Solids*, v 43, pp 189- 206, 1995.
- 42 Hu KX, Huang Y, Yeh CP, Wyatt KW, "Stress analysis of printed circuit boards with highly populated solder joints and components: A micromechanics approach," *Journal of Electronic Packaging (ASME Transactions)*, v 118, pp 87-93, 1996.
- 43 Huang Y, Chandra A, Jiang ZQ, Wei X, and Hu KX, "The numerical calculation of two-dimensional effective moduli for microcracked solids," *International Journal of Solids and Structures*, v 33, pp 1575-1586, 1996.
- 44 Huang Y, Hu KX, Yeh CP, Li NY, and Hwang KC, "A model study of thermal stress-induced voiding in electronic packages," *Journal of Electronic Packaging (ASME Transactions)*, v 118, pp 229-234, 1996.
- 45 Huang Y, Li NY, Zhang HW, and Hwang KC, "Interactive growth of multiple fiber- bridged matrix cracks in unidirectional composites," *Journal of Engineering Materials and Technology (ASME Transactions)*, v 118, pp 295-301, 1996.
- 46 Huang Y, Liu C, and Rosakis AJ, "Transonic crack growth along a bimaterial interface: An analytical investigation of the asymptotic structure of near-tip stress fields," *International Journal of Solids and Structures*, v 33, pp 2625-2645, 1996.
- 47 Huang Y, Liu C, and Stout MG, "A Brazilian disk specimen for measuring the fracture toughness of orthotropic materials," *Acta Materialia*, v 44, pp 1223- 1232, 1996.
- 48 Jiang ZQ, Chandra A, and Huang Y, "A hybrid micro-macro BEM with microscale inclusion-crack interactions " *International Journal of Solids and Structures*, v 33, pp 2309-2329, 1996.
- 49 Zhang HW, Huang Y, Zhou CT, and Hwang KC, "A rate-independent constitutive law for nonproportional cyclic plasticity," *Acta Mechanica Sinica*, v 28, pp 171-180, 1996.
- 50 Chandra A, Huang Y, and Hu KX, "Crack size dependence of overall response of fiber-reinforced composites with matrix cracking," *International Journal of Solids and Structures*, v 34, pp 3837-3857, 1997.
- 51 Huang Y, Gong XY, Suo Z, and Jiang ZQ, "A model of evolving damage bands in materials," *International Journal of Solids and Structures*, v 34, pp 3941-3951, 1997.

- 52 Huang Y, Zhang L, Guo TF, and Hwang KC, "Mixed mode near-tip fields for cracks in materials with strain gradient effects," *Journal of the Mechanics and Physics of Solids*, v 45, pp 439-465, 1997.
- 53 Jiang ZQ, Huang Y, and Chandra A, "Thermal stresses in layered electronic assemblies," *Journal of Electronic Packaging (ASME Transactions)*, v 119, pp 127-132, 1997.
- 54 Liu C, Huang Y, Lovato ML, and Stout MG, "Measurement of the fracture toughness of a fiber-reinforced composite using the Brazilian disk geometry," *International Journal of Fracture*, v 87, pp 241-263, 1997.
- 55 Liu C, Huang Y, and Stout MG, "On the asymmetric yield surface of plastically orthotropic materials: A phenomenological study," *Acta Materialia*, v 45, pp 2397-2406, 1997.
- 56 Chen JY, Huang Y, and Hwang KC, "Mode I and mode II plane-stress near-tip fields for cracks in materials with strain gradient effects," *Key Engineering Materials*, v 145-149, pp 19-28, 1998.
- 57 Chen JY, Huang Y, and Ortiz M, "Fracture of cellular materials: A strain gradient model," *Journal of the Mechanics and Physics of Solids*, v 46, pp 789-828, 1998.
- 58 Huang Y, Chandra A, and Li NY, "Void-nucleation vs void-growth controlled plastic flow localization in materials with nonuniform particle distributions," *International Journal of Solids and Structures*, v 35, pp 2475-2486, 1998.
- 59 Huang Y, Liu C, Stout MG, and Hwang KC, "The effect of interfacial damage on the microbuckling of fiber-reinforced composites," *Key Engineering Materials*, v 145-149, pp 473-478, 1998.
- 60 Huang Y, Wang W, Liu C, and Rosakis AJ, "Intersonic crack growth in bimaterial interfaces: An investigation of crack face contact," *Journal of the Mechanics and Physics of Solids*, v 46, pp 2233-2259, 1998.
- 61 Hwang KC, Guo TF, Huang Y, and Chen JY, "Fracture in strain gradient elasticity," *Metals and Materials*, v 4, pp 593-600, 1998.
- 62 Liu C, Huang Y, and Stout MG, "Enhanced mode-II fracture toughness of an epoxy resin due to shear banding," *Acta Materialia*, v 46, pp 5647-5661, 1998.
- 63 Wang W, Huang Y, Rosakis AJ, and Liu C, "Effect of elastic mismatch in intersonic crack propagation along a bimaterial interface," *Engineering Fracture Mechanics*, v 61, pp 471-485, 1998.

- 64 Zhang L, Huang Y, Chen JY, and Hwang KC, "The mode III full-field solution in elastic materials with strain gradient effects," *International Journal of Fracture*, v 92, pp 325-348, 1998.
- 65 Chen JY, Wei Y, Huang Y, Hutchinson JW, and Hwang KC, "The crack tip fields in strain gradient plasticity: The asymptotic and numerical analyses," *Engineering Fracture Mechanics*, v 64, pp 625-648, 1999.
- 66 Gao H, Huang Y, Gumbsch P, and Rosakis AJ, "On radiation-free transonic motion of cracks and dislocations," *Journal of the Mechanics and Physics of Solids*, v 47, pp 1941-1961, 1999.
- 67 Gao H, Huang Y, and Nix WD, "Modeling plasticity at the micrometer scale," *Naturwissenschaften*, v 86, pp 507-515, 1999 (**cover feature article**).
- 68 Gao H, Huang Y, Nix WD, and Hutchinson JW, "Mechanism-based strain gradient plasticity. I. – Theory," *Journal of the Mechanics and Physics of Solids*, v 47, pp 1239-1263, 1999.
--- *This paper is the most cited paper among all mechanics papers (more than 9700) published in 1999 in all 110 mechanics journals listed in Thomson ISI Web of Science.*
--- *It is also the most cited paper among all mechanical engineering papers (more than 8700) published in 1999 in all 104 mechanical engineering journals listed in Thomson ISI Web of Science.*
- 69 Huang Y, Chen JY, Guo TF, Zhang L, and Hwang KC, "Analytical and numerical studies on mode I and mode II fracture in elastic-plastic materials with strain gradient effects," *International Journal of Fracture*, v 100, pp 1-27, 1999.
- 70 Huang Y, Wang W, Liu C, and Rosakis AJ, "Analysis of intersonic crack growth in unidirectional fiber-reinforced composites," *Journal of the Mechanics and Physics of Solids*, v 47, pp 1893-1916, 1999.
- 71 Huo B, Zheng QS, and Huang Y, "A note on the effect of surface energy and void size to void growth," *European Journal of Mechanics, A/Solids*, v 18, pp 987-994, 1999.
- 72 Miller PD, Liu CP, Henstrom WL, Gibson JM, Huang Y, Zhang P, Kamins TI, Basile DP, and Williams RS, "Direct measurement of strain in a Ge island on Si (001)," *Applied Physics Letters*, v 75, pp 46-48, 1999.
- 73 Chandra A, Huang Y, Jiang ZQ, Hu KX, and Hu G, "A model of crack nucleation in layered electronic assemblies under thermal cycling," *Journal of Electronic Packaging (ASME Transactions)*, v 122, pp 220-226, 2000.
- 74 Chandra A, Wang K, Huang Y, Subhash G, Miller MH, and Qu W, "Role of unloading in machining of brittle materials," *Journal of Manufacturing Science and Engineering (ASME Transactions)*, v 122, pp 452-462, 2000.

- 75 Chen JY, Huang Y, Hwang KC, and Xia ZC, "Plane-stress deformation in strain gradient plasticity," *Journal of Applied Mechanics (ASME Transactions)*, v 67, pp 105-111, 2000.
- 76 Huang Y, Gao H, Nix WD, and Hutchinson JW, "Mechanism-based strain gradient plasticity. II. – Analysis," *Journal of the Mechanics and Physics of Solids*, v 48, pp 99-128, 2000.
--- ***This paper is the most cited paper among all mechanics papers (more than 9700) published in 2000 in all 110 mechanics journals listed in Thomson ISI Web of Science.***
--- ***It is also the most cited paper among all mechanical engineering papers (more than 8700) published in 2000 in all 104 mechanical engineering journals listed in Thomson ISI Web of Science.***
- 77 Huang Y, Xue Z, Gao H, Nix WD, and Xia ZC, "A study of micro-indentation hardness tests by mechanism-based strain gradient plasticity," *Journal of Materials Research*, v 15, pp 1786-1796, 2000.
- 78 Hwang KC and Huang Y, "Mechanism-based strain gradient (MSG) plasticity and the associated asymptotic crack-tip fields," *Key Engineering Materials*, v 183, pp 9-18, 2000.
- 79 Qu W, Wang K, Miller MH, Huang Y, and Chandra A, "Using vibration-assisted grinding to reduce subsurface damage," *Precision Engineering – Journal of the International Societies for Precision Engineering and Nanotechnology*, v 24, pp 329-337, 2000.
- 80 Rosakis AJ, Coker D and Huang Y, "Subsonic and intersonic dynamic crack growth in unidirectional composites," *Transactions of the Society of Manufacturing Engineers*, Technical Paper SEM00-247, pp 1-10, 2000.
- 81 Shi MX, Huang Y, Gao H, and Hwang KC, "Non-existence of separable crack tip field in mechanism-based strain gradient plasticity," *International Journal of Solids and Structures*, v 37, pp 5995-6010, 2000.
- 82 Shi MX, Huang Y, and Hwang KC, "Fracture in a higher-order elastic continuum," *Journal of the Mechanics and Physics of Solids*, v 48, pp 2513-2538, 2000.
- 83 Shi MX, Huang Y, and Hwang KC, "Plastic flow localization in mechanism-based strain gradient plasticity," *International Journal of Mechanical Science*, v 42, pp 2115-2131, 2000.
- 84 Wang KP, Huang Y, Chandra A, and Hu KX, "Interfacial shear stress, peeling stress, and die cracking stress in trilayer electronic assemblies," *IEEE Transactions on Component and Packaging Technology*, v 23, pp 309-316, 2000.

- 85 Gao H and Huang Y, "Taylor-based nonlocal theory of plasticity," *International Journal of Solids and Structures*, v 38, pp 2615-2637, 2001.
- 86 Gao H, Huang Y, and Abraham FA, "Continuum and atomistic studies of intersonic crack propagation," *Journal of the Mechanics and Physics of Solids*, v 49, pp 2113-2132, 2001.
- 87 Guo Y, Huang Y, Gao H, Zhuang Z, and Hwang KC, "Taylor-based nonlocal theory of plasticity: numerical studies of micro-indentation experiments and crack tip fields," *International Journal of Solids and Structures*, v 38, pp 7447-7460, 2001.
- 88 Huang Y and Gao H, "Inter-sonic crack propagation. Part I: The fundamental solution," *Journal of Applied Mechanics (ASME Transactions)*, v 68, pp 169-175, 2001.
- 89 Jiang H, Huang Y, Zhuang Z, and Hwang KC, "Fracture in mechanism-based strain gradient plasticity," *Journal of the Mechanics and Physics of Solids*, v 49, pp 979-993, 2001.
- 90 Qiu X, Huang Y, Nix WD, Hwang KC, and Gao H, "Effect of intrinsic lattice resistance in strain gradient plasticity," *Acta Materialia*, v 49, pp 3949-3958, 2001.
- 91 Saha R, Xue Z, Huang Y, and Nix WD, "Indentation of a soft metal film on a hard substrate: strain gradient hardening effects," *Journal of the Mechanics and Physics of Solids*, v 49, pp 1997-2014, 2001.
- 92 Shi M, Huang Y, Jiang H, Hwang KC, and Li M, "The boundary layer effect on the crack tip field in mechanism-based strain gradient plasticity," *International Journal of Fracture*, v 112, pp 23-41, 2001.
- 93 Huang Y and Gao H, "Inter-sonic crack propagation. Part II: suddenly stopping crack," *Journal of Applied Mechanics (ASME Transactions)*, v 69, pp 76-80, 2002.
- 94 Hwang KC, Jiang H, Huang Y, Gao H, and Hu N, "A finite deformation theory of strain gradient plasticity," *Journal of the Mechanics and Physics of Solids*, v 50, pp 81-99, 2002.
- 95 Jiang H, Huang Y, Guo TF, and Hwang KC, "An alternative decomposition of the strain gradient tensor," *Journal of Applied Mechanics (ASME Transactions)*, v 69, pp 139-141, 2002.
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