

## **Guruswami Ravichandran**

John E. Goode, Jr. Professor  
Director

Graduate Aerospace Laboratories (GALCIT)  
California Institute of Technology  
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### **EDUCATION**

Ph.D.	1986	Engineering (Solid Mechanics and Structures) Minors: Materials Science and Applied Mathematics Advisor: Professor R. J. Clifton	Brown University
Sc.M.	1984	Applied Mathematics	Brown University
Sc.M.	1983	Engineering (Solid Mechanics and Structures)	Brown University
B. E. (Honors)	1981	Mechanical Engineering	University of Madras

### **POSITIONS HELD**

*California Institute of Technology, Division of Engineering and Applied Science*

Director, Graduate Aerospace Laboratories (GALCIT), 2009-

John E. Goode, Jr. Professor of Aerospace and Professor of Mechanical Engineering, 2010-

Associate Director, Graduate Aerospace Laboratories (GALCIT), 2008-'09

John E. Goode, Jr. Professor of Aeronautics and Mechanical Engineering, 2005-'10

Professor of Aeronautics and Mechanical Engineering, 2000-'05

Professor of Aeronautics, 1999-2000

Associate Professor of Aeronautics, 1995-'99

Assistant Professor of Aeronautics, 1990-'95

*University of California, San Diego*

Assistant Professor, Department of Applied Mechanics and Engineering Sciences, 1987-'90

*California Institute of Technology, Research Fellow, Aeronautics, 1986-'87*

*Brown University, Research Assistant, Division of Engineering, 1981-'86*

### **Visiting Appointments**

Indian Institute of Science, Aditya Birla Chair Visiting Professor, 2007 (Summer)

Tokyo Institute of Technology, Chair in International Cooperation Professor, 2005 (Summer)

Ecole Polytechnique, France, CNRS Senior Visiting Scientist, 2001-'02

University of Metz, France, Invited Professor, 1999-2006 (Short visits)

## **TEACHING**

*Division of Engineering and Applied Science, California Institute of Technology, 1990-*

Undergraduate Course in Mechanics of Materials

Graduate Courses in Mechanics of Structures and Solids, Experimental Methods, Mechanics and Materials Aspects of Fracture Mechanics, Plasticity, and Dynamic Behavior of Materials

*Department of Applied Mechanics and Engineering Sciences, University of California, San Diego, 1987-'90*

Undergraduate Courses in Engineering Graphics, Advanced Solid Mechanics, Experimental Techniques, and Mechanical Engineering Laboratory

Graduate Courses and Lecture Series in Mechanical Behavior of Materials, Stress Waves in Solids, Dynamic Behavior of Materials, and Dynamic Fracture

### *Short Courses*

Fracture Mechanics and Failure Analysis, An annual training course for engineers and scientists from national labs, industry and academia, ETech, Inc., Pasadena, CA, 1994-'98

Fracture Mechanics of Microelectronics Device, Intel University, Chandler, AZ, 2000

Linear and Nonlinear Fracture Mechanics, Japan Society of Materials Science, Tokyo, 2005

Application of Fracture Mechanics Concepts to the Reliability Analysis of Microelectronic Components, Intel Corporation, Chandler, AZ, 2007

## **HONORS AND AWARDS**

Chevalier de l'ordre des Palmes Academiques, Republic of France, 2011

Best Paper Award in Dynamic Behavior of Materials, Society for Experimental Mechanics, 2011

Fellow, Society for Experimental Mechanics (SEM), 2010

Andrew Heiskell Award for Innovation in International Education, Institute of International Education, 2010 (awarded to GALCIT in recognition of Dual Masters Degree Program between Caltech and Ecole Polytechnique)

Plenary Lecture, 9<sup>th</sup> Asia-Pacific Conference for Materials and Mechanics, Yokohama, Japan, 2009

Charles Russ Richards Memorial Award, Pi Tau Sigma and American Society of Mechanical Engineers (ASME), 2008 (for outstanding achievement in mechanical engineering twenty years or more following graduation)

Keynote Lecture, Inter-Quadrennial International Conference on Fracture, Bangalore, India, 2008

M. Hetenyi Award, Society for Experimental Mechanics, 2008 (for Best Paper published in Experimental Mechanics in 2006)

Distinguished Alumni Award for Academic Excellence, National Institute of Technology, Trichy (NITT), India, 2008

Keynote Lecture, JSME Symposium for Young Researchers in Mechanics and Materials, Japan, 2008

Midwest Mechanics Lecturer (10 Universities), 2007-'08

Aditya Birla Chair Visiting Professor, Indian Institute of Science, Bangalore, India, 2007

Doctor honoris causa (Dhc), Paul Verlaine University, Metz, France, 2006  
Keynote Lecture, First JTU-TIT Workshop on Innovation of Creative Engineering, Xian, China, 2005  
John E. Goode, Jr. Endowed Professorship, California Institute of Technology, 2005  
Chair in International Cooperation Visiting Professor, Tokyo Institute of Technology, 2005  
B. J. Lazan Award, Society of Experimental Mechanics, 2005 (in recognition of outstanding original contribution to experimental mechanics)  
Best Paper Award in Adaptive Structures and Material Systems, Aerospace Division, American Society of Mechanical Engineers (ASME), 2005  
Senior Visiting Scientist (Directeur de Recherche Associe, CNRS), Ecole Polytechnique, France, 2001-'02  
Keynote Lecture, Joint JSME-ASME Conference on Materials and Processing, Honolulu, Hawaii, 2002  
Southwest Mechanics Lecturer (4 Universities), 2001  
Fellow, American Society of Mechanical Engineers (ASME), 2000  
Honors Lecture, University of Rhode Island, 1998  
Alumni Day Seminar Speaker, California Institute of Technology, 1993  
Presidential Young Investigator Award, National Science Foundation, 1991  
Elected to Sigma Xi (Scientific Honor Society), 1983  
Merit Scholar, Regional Engineering College, Trichy, India, 1976-'81  
National Merit Certificate, Government of India, 1975

### **SOCIETY MEMBERSHIPS**

Fellow, American Society of Mechanical Engineers (ASME)  
Fellow, Society for Experimental Mechanics (SEM)  
Member, American Academy of Mechanics (AAM)  
Member, American Society of Engineering Education (ASEE)

### **PROFESSIONAL ACTIVITIES**

#### Professional Societies

Chair, Aerospace Historical Society (AHS), 2009-  
Member-at-Large, Executive Board, Society for Experimental Mechanics, 2006-'08  
Chairman, ASME AMD Technical Committee on Fracture and Failure Mechanics, 1995-'97  
Treasurer, American Academy of Mechanics (AAM), 1988-'90

#### National Academies

Member, Panel on Survivability and Lethality Analysis, Army Research Laboratories Technical Assessment Board (ARLTAB), National Research Council, 2009-'12  
Member, US National Committee on Theoretical and Applied Mechanics (USNC/TAM), 2010-

#### Editorial

Editorial Board, *International Journal of Sandwich Structures*, 2008-  
Editorial Board, *Mechanics of Structures and Materials*, 2008-  
Associate Technical Editor, *ASME Journal of Engineering Materials and Technology*, 1997-2000

Associate Editor, *Experimental Mechanics*, 1997-2000

Editorial Board, *Mechanics*, 1997-2002

Reviewed papers for journals including:

Journal of the Mechanics and Physics of Solids, Journal of Applied Mechanics, International Journal for Solids and Structures, Mechanics of Materials, International Journal of Fracture, Journal of Engineering Materials and Technology, Journal of Composites Science and Technology, Journal of Composite Materials, Journal of Composites Engineering, Journal of Time-Dependent Materials, Experimental Mechanics, International Journal of Plasticity, Journal of Pressure Vessels and Technology, AIAA Journal, Journal of Spacecraft, Journal of Applied Physics, Applied Physics Letters, Acta Materialia, Scripta Materialia, Metallurgical Transactions A, Materials Science and Engineering, Journal of the American Ceramic Society, SIAM Journal of Applied Mathematics, Engineering Fracture Mechanics, Journal of Elasticity, Philosophical Magazine, Soft Matter, Smart Structures and Materials, Journal of Adhesion, Proceeding of the National Academy of Sciences

Reviewed technical manuscripts of prospective books for Cambridge University Press, John Wiley, Springer

Reviewed proposals for National Science Foundation, Army Research Office, National Research Council, Israel Science Foundation, International Science Foundation, Institute of Geophysics and Planetary Physics (IGPP), LLNL Materials Institute, Alabama DEPSCOR, URI Transportation Center, Partner University Fund (Embassy of France), American Association for the Advancement of Science

Panel Member, CAREER, NIRT, Individual Investigator and Equipment Grants, National Science Foundation

#### Conference, Symposium, Workshop Organization

Chair, 9<sup>th</sup> International Conference in Sandwich Structures (ICSS-9), Pasadena, CA, 2010

Organizer, GEM<sup>4</sup> Summer School on Cell and Molecular Mechanics in Biomedicine with a focus on Cardiovascular systems, Pasadena, CA, 2008 (with M. Gharib)

Organized symposiums & conferences including Dynamic Response of Ceramics at the 29<sup>th</sup> SES Annual Technical meeting, UCSD, La Jolla, CA, 1992; Dynamic Behavior of Advanced Materials at the 12<sup>th</sup> US National Congress of Applied Mechanics, Seattle, WA; 1994 (with A. Shukla); Dynamic Failure Mechanics at the 31<sup>st</sup> SES Annual Technical Meeting, Texas A&M University, College Station, TX, 1994 (with A. J. Rosakis); Mechanics and Materials Aspects of Dynamic Failure at the ASME Winter Annual Meeting, Chicago, IL, 1994; Caltech/JPL workshop on Survivable Penetrators for Space Applications, 1995; 20<sup>th</sup> International Symposium on Shock Waves (ISSW), Pasadena, CA, 1995 (Organizing committee); Rupture Dynamics, ASME AMD/MD Summer Meeting, Johns Hopkins University, Baltimore, MD, 1996 (with P. H. Geubelle); ONR/ARO Symposium to honor R. J. Clifton on Dynamic Deformation and Failure Mechanics of Materials, Caltech, 1997 (with A. J. Rosakis, M. Ortiz, Y. D. S. Rajapakse and K. Iyer); International Symposium on Meso-Mechanical Aspects of Strength and Fracture, Caltech, 1998; Adiabatic Shear Banding and Dynamic Failure, ASME AMD/MD Summer Meeting, Virginia Tech, 1999 (with A. M. Rajendran); Prager Medalist L. B. Freund Symposium on Dynamic Failure Mechanics and Thin Films, SES Annual Technical Meeting, University of South Carolina, Columbia, SC, 2000 (with A. J. Rosakis); ICF-10 Symposium on High-Strain-Rate Failure, Honolulu, Hawaii, 2001; ONR/Elsevier Symposium to honor L. B. Freund on Dynamic Failure and Thin Film Mechanics, Caltech, 2003 (with A. J. Rosakis and S. Suresh); Dynamic Deformation and Failure Mechanics, SEM, Charlotte, NC, 2003 (with A. J. Rosakis and W. Chen); Dynamic Behavior of Materials, ICM-9, Geneva, Switzerland, 2003; Solid

and Structural Mechanics Symposium on the occasion of the 75<sup>th</sup> Anniversary of GALCIT, Pasadena, 2003; W. G. Knauss Symposium on Current Trends in Mechanics, Pasadena, 2004 (with K. Ravi-Chandar and K. Liechti); Symposium to honor C. F. Shih on Physics and Mechanics of Materials, Singapore, 2006; Symposium to honor R. J. Clifton on Mechanics of Materials, Annapolis, MD, 2007 (with K. T. Ramesh); Symposium on Advanced Materials, 9<sup>th</sup> ASME Biennial Conference on Engineering Systems Design and Analysis, Haifa, Israel (2008) (with D. Rittel); Workshop on Hull Slamming, Pasadena, CA (with M. Battley and Y. D. S. Rajapakse), 2009; International Mechanics and Materials International Symposium for Young Researchers, Pasadena, CA (with J. Komotori), 2010; Workshop on Hull Slamming, College Park, MD, 2010 (with M. Battley and Y. D. S. Rajapakse); Symposium to honor J. R. Rice, Pasadena, CA, 2011 (with N. Lapusta, A. J. Rosakis and M. Gurnis); Symposium to honor L. B. Freund, Providence, RI, 2011 (with K.S. Kim, H. Gao and A. J. Rosakis)

## **UNIVERSITY AND DEPARTMENTAL ACTIVITIES**

### *California Institute of Technology*

#### Institute (Caltech)

Steering Committee, Keck Institute for Space Studies (KISS), 2009-  
Faculty Board, 2005-'09

Steering Committee, 2006-'09

Nominating Committee, 2005-'06

Graduate Studies Committee, 2008-'09

Facilities Director, Center for Science and Engineering of Materials (CSEM), 2004-  
Chair, Matriculation Committee, 2000-'01

Patents and Relations with Industry Committee, 1999-2005

Freshman Admissions Committee, 1997-2000

#### Division (Engineering and Applied Science)

Division Advisory Group, Engineering and Applied Science, 2009-

Division Steering Committee, Engineering and Applied Science, 2004-'05

Chair and member of various committees for hiring, tenure and promotion of faculty in

Aerospace, Mechanical Engineering and Materials Science, 1995-

Committee for the Undergraduate Curriculum, 2002-'08

#### Department (Aerospace, Mechanical Engineering)

Director, Graduate Aerospace Laboratories (GALCIT), 2009-

GALCIT Advisory Council (*Ex-officio*), 2008-

Associate Director, GALCIT, 2008-'09

Guggenheim Building Renovation Committee, 2006-'08

Various departmental committees for: Admissions, Awards, Machine Shop, Staffing, 1990-

Graduate Admissions Committee, Mechanical Engineering, 2002-

Undergraduate Option Representative, Mechanical Engineering, 2002-'08

*University of California, San Diego*

Department of Applied Mechanics and Engineering Sciences (AMES)

Undergraduate Affairs Committee, 1987-'89

Graduate Affairs Committee, 1988-'90

Faculty Advisor, American Society of Mechanical Engineers (ASME) Student Chapter,  
1988-'90

**CONSULTING**

Ceracon, Inc., Modesto, California

ETECH, Inc., Pasadena, California

eV3 (Neurovascular), Irvine, California

GRAFTcath, Inc., Eden Prairie, Minnesota

Orqis Medical, Lake Forrest, California

Reshape Medical, San Clemente, California

SPARTA, Inc., Laguna Hills, California

TRW, Manhattan Beach, California

Vascular Architects, San Jose, California

Wyle Laboratories, Edwards AFB, California

**PERSONNEL SPONSORED**

Doctoral Students

Weinong Chen\* (1995) (Purdue), Mark Walter\* (1996) (Ohio State), Jon Hodowany\* (1997) (Industry), Karina Edmonds (1997) (Department of Energy), Kenji Oguni (2000) (Keio University), Eric Burcsu† (2001) (MIT Lincoln Laboratory), Shiming Zhuang\* (2002) (Kimberly Clark), Jun Lu (2002) (International Rectifiers, Inc), Rongjing Zhang† (2006), Min Tao (2006) (Intel), Theresa Kidd\* (2007) (Northrop Grumman), Samantha Daly◊ (2007) (University of Michigan), Christian Franck\* (2008) (Brown), Winston Jackson◊ (2008) (Northrop Grumman), Ling Zheng◊ (2009) (Intel), Benny Poon (2009) (Intel), Sharlotte Kramer†+ (2009) (UIUC), Michael Silva (2011), Christopher Kovalchick◊ (Intel) (2011), Justin Brown\*\* (Sandia) (2011)

Current PhD Students

Kristen John, Jacob Notbohm, Michael Rauls, Victoria Stolyar

\**Recipient of the William F. Ballhaus Prize for outstanding doctoral dissertation in Aerospace*

\*\**Recipient of the Centennial Prize for best thesis in Mechanical and Civil Engineering*

†*Recipient of the Donald Coles Prize in Aeronautics for the best design of an experiment for doctoral dissertation in Aerospace*

+*Recipient of the Hans Hornung Prize for best dissertation presentation in Aerospace*

◊*Recipient of the Charles D. Babcock Prize for contributions to teaching in Aerospace*

Engineer's Degree Students

Mullahalli Srinivas (1993) (GE), Nitin Deshpande (1998) (Intel)

### Post-Doctoral Scholars

Ghatu Subhash (University of Florida), Wei Tong (Southern Methodist), David Owen (Ultratech), Min Zhou (Georgia Tech), Sunil Yadav (Bank of America), Sangwook Lee (Industry), Yann Carin (Peugeot), Murat Vural (Illinois Institute of Technology), Wei Zhang (Industry), Doron Shilo (Technion), Yabei Gu (Industry), Abhishek Bhattacharyya (Industry), Soonsung Hong (Michigan State), Jianheng Zhao (IFP, CAEP), H. J. Kwon (Waterloo), Arjun Tekalur (Michigan State), Laurent Ponson (Universite Marie et Pierre Curie), Shuman Xia (Georgia Tech), Maen Alkhader (SUNY, Stony Brook), Addis Kidane (South Carolina), Laurence Bodelot (Ecole Polytechnique),

### Visiting Associates

Doo-Hyun Baik (ADD), Atul Chokshi (IISc), S. C. Deevi (ORNL), Arie Venkert (NRCN), Joseph Sariel (NRCN), Louis Hallez (Ecole Polytechnique), Jean-Noel Truchet (Ecole Polytechnique), Jean-Thibault de Besombes (Ecole Polytechnique), Aurlien Miller (Ecole Polytechnique), Alain Molinari (University of Metz), Nathanael Kriven (Ecole Polytechnique), Daniel Rittel (Technion), Elizabeth Bouchaud (CEA), Herzl Chai (Tel Aviv), Loic Peletan (ENS-Cachan), Robin Briend (Ecole Polytechnique), Alban de Vaucorbeil (ENS-Cachan), Soon-Bok Lee (KAIST), Bilel Ourertani (ENS-Cachan), Arun Shukla (URI), Ishan Tembhekar (IIT-GN), Gwenael Huelou (ENS-Cachan), Alexandra Gdoutou (Northwestern)

### **INVITED LECTURES/SEMINARS**

*Delivered more than 180 invited lectures/seminars in academia, industry, DoD/DoE laboratories and at national and international conferences. Selected recent presentations are listed:*

- Keynote Lecture, Thermomechanics and Infrared Imaging Track, SEM Annual Conference, Uncasville, CT, 2011
- GEM<sup>4</sup> Winter School on Cell and Molecular Mechanics in Biomedicine, University of Texas, Austin, TX, 2010
- Plenary Lecture, Asia-Pacific Conference for Materials and Mechanics, Yokohama, Japan, 2009

### **PUBLICATIONS**

#### **Journal Articles**

- G. Ravichandran and R. J. Clifton, Dynamic Fracture Under Plane Wave Loading, *International Journal of Fracture*, 40, 157-201 (1989)
- G. Ravichandran and W. G. Knauss, A Finite Elastostatic Analysis of Bimaterial Interface Cracks, *International Journal of Fracture*, 39, 235-253 (1989)
- R. Godse, G. Ravichandran and R. J. Clifton, Micromechanisms of Dynamic Crack Propagation in an AISI-4340 Steel, *Materials Science and Engineering*, A112, 79-88 (1989)
- K. T. Ramesh and G. Ravichandran, Dynamic Behavior of a Boron Carbide-Aluminum Cermet: Experiments and Observations, *Mechanics of Materials*, 10, 19-29 (1990)
- S. Krishnaswamy, A. J. Rosakis and G. Ravichandran, On the Extent of Dominance of Asymptotic Elastodynamic Crack-tip Fields; Part II: Numerical Investigation of Three Dimensional and Transient Effects, *Journal of Applied Mechanics*, 58, 95-103 (1991)

- A. J. Rosakis, J. J. Mason and G. Ravichandran, The Conversion of Plastic Work to Heat around a Dynamically Propagating Crack in Metals, *Journal of Mechanical Behavior of Materials*, 4, p. 375-385 (1992)
- W. Tong and G. Ravichandran, Dynamic Pore Collapse in Viscoplastic Materials, *Journal of Applied Physics*, 74, 2425-2435 (1993)
- M. V. Srinivas and G. Ravichandran, Interfacial Crack Propagation in a Thin Viscoelastic Film Bonded to an Elastic Substrate, *International Journal of Fracture*, 65, 31-47 (1994).
- G. Subhash, Y. J. Lee and G. Ravichandran, Plastic Deformation of CVD Textured Tungsten: Part I. Constitutive Response, *Acta Metallurgica et Materialia*, 42, 319-330 (1994)
- G. Subhash, Y. J. Lee and G. Ravichandran, Plastic Deformation of CVD Textured Tungsten: Part II. Characterization, *Acta Metallurgica et Materialia*, 42, 331-340 (1994)
- G. Ravichandran and G. Subhash, Critical Appraisal of Limiting Strain Rates for Testing Ceramics in a Split Hopkinson Pressure Bar, *Journal of the American Ceramic Society*, 77, 263-67 (1994)
- J. J. Mason, A. J. Rosakis and G. Ravichandran, On the Strain and Strain-Rate Dependence of Plastic Work Converted to Heat: An Experimental Study Using High Speed Infrared Detectors and the Kolsky Bar, *Mechanics of Materials*, 17, 135-145 (1994)
- G. Ravichandran, Influence of Processing on the High Strain Rate Behavior of Refractory Metals-A Review, *Materials and Manufacturing Processes*, 9, 1031-1046 (1994)
- W. Tong and G. Ravichandran, Rise Time in Shock Consolidation of Materials, *Applied Physics Letters*, 65, 2783-85 (1994)
- W. Tong and G. Ravichandran, Effective Elastic Moduli and Characterization of a Particulate-Reinforced Metal Matrix Composite with Damaged Particles, *Composites Science and Technology*, 52, 247-252 (1994)
- W. Chen, G. Subhash and G. Ravichandran, Evaluation of Ceramic Specimen Geometries Used in a Split Hopkinson Pressure Bar, *Dymat Journal*, 1, 193-210 (1994)
- J. J. Mason, A. J. Rosakis and G. Ravichandran, Full Field Measurements of the Dynamic Deformation Field Around a Growing Adiabatic Shear Band at the Tip of a Dynamically Loaded Notch, *Journal of the Mechanics and Physics of Solids*, 42, 1679-1698 (1994)
- M. E. Walter and G. Ravichandran, An Experimental Investigation of Damage Evolution in a Ceramic Matrix Composite, *Journal of Engineering Materials and Technology*, 117, 101-108 (1995)
- W. Tong, G. Ravichandran, T. A. Christman and T. Vreeland, Processing SiC-Particulate Reinforced Titanium-based Metal Matrix Composites by Shock Wave Consolidation, *Acta Metallurgica et Materialia*, 43, 235-250 (1995)
- G. Ravichandran and C. T. Liu, Modeling Constitutive Behavior of Particulate Composites Undergoing Damage, *International Journal of Solids and Structures*, 32, 979-990 (1995)
- G. Ravichandran and G. Subhash, A Micromechanical Model for High-Strain-Rate Behavior of Ceramics, *International Journal of Solids and Structures*, 32, 2627-2646 (1995)
- W. Tong and G. Ravichandran, Inertial Effects on Void Growth in Viscoplastic Materials, *Journal of Applied Mechanics*, 62, 633-639 (1995)
- D. J. Benson, W. Tong and G. Ravichandran, Particle Level Modeling of Dynamic Consolidation of Ti-SiC Powders, *Modeling and Simulation in Materials Science and Engineering*, 3, 771-796 (1995)

- W. Chen and G. Ravichandran, An Experimental Technique for Imposing Dynamic Multiaxial-Compression with Mechanical Confinement, *Experimental Mechanics*, 36, 155-158 (1996)
- W. Chen and G. Ravichandran, Static and Dynamic Compressive Behavior of Aluminum Nitride under Moderate Confinement, *Journal of American Ceramic Society*, 79, 579-584 (1996)
- M. Zhou, A. J. Rosakis and G. Ravichandran, Dynamically Growing Shear Bands in Impact Loaded Prenotched Plates, Part I: Experimental Investigation, *Journal of the Mechanics and Physics of Solids*, 44, 981-1006 (1996)
- M. Zhou, G. Ravichandran and A. J. Rosakis, Dynamically Growing Shear Bands in Impact Loaded Prenotched Plates, Part II: Numerical Simulation, *Journal of the Mechanics and Physics of Solids*, 44, 1007-1032 (1996)
- M. E. Walter and G. Ravichandran, Experimental Simulation of Matrix Cracking and Debonding in a Model Brittle Matrix Composite, *Experimental Mechanics*, 37, 130-135 (1997)
- M. E. Walter, G. Ravichandran and M. Ortiz, Computational Modeling of Damage Evolution in Fiber Reinforced Ceramic Matrix Composites, *Computational Mechanics*, 20, 192-198 (1997)
- W. Chen and G. Ravichandran, Dynamic Compressive Failure of a Glass Ceramic under Lateral Confinement, *Journal of the Mechanics and Physics of Solids*, 45, 1303-1328 (1997)
- T. W. Wright and G. Ravichandran, Canonical Aspects of Adiabatic Shear Bands, *International Journal of Plasticity*, 13, 309-325 (1997)
- G. Subhash, G. Ravichandran and B. J. Pletka, Plastic Deformation of Hafnium under Uniaxial Compression, *Metallurgical Transactions A*, 28, 1479-1487 (1997)
- G. Subhash and G. Ravichandran, Mechanical Behavior of a Hot-Pressed Aluminum Nitride Under Uniaxial Compression, *Journal of Materials Science*, 33, 1933-1939 (1998)
- G. Ravichandran and C. T. Liu, Crack-Tip Shielding in Particulate Composites Undergoing Damage, *Engineering Fracture Mechanics*, 59, 713-723 (1998)
- M. Zhou, A. J. Rosakis and G. Ravichandran, On the Growth of Shear Bands and Failure-Mode Transition in Prenotched Plates-A Comparison of Singly and Doubly Notched Specimens, *International Journal of Plasticity*, 14, 435-451 (1998)
- T. Dummer, J. C. Lasalvia, G. Ravichandran and M. A. Meyers, Effect of Strain Rate on Plastic Flow and Failure in Polycrystalline Tungsten, *Acta Materialia*, 46, 6267-6290 (1998)
- K. Bhattacharya, M. Ortiz and G. Ravichandran, Energy-Based Model of Compressive Splitting in Heterogeneous Brittle Solids, *Journal of the Mechanics and Physics of Solids*, 46, 2171-2181 (1998)
- P. R. Guduru, R. P. Singh, G. Ravichandran and A. J. Rosakis, Dynamic Crack Initiation in Ductile Steels, *Journal of the Mechanics and Physics of Solids*, 46, 1997-2016 (1998)
- D. M. Owen, S. Zhuang, A. J. Rosakis and G. Ravichandran, Experimental Determination of Dynamic Crack Initiation and Propagation Fracture Toughness in Thin Aluminum Sheets, *International Journal of Fracture*, 90, 153-174 (1998)
- Y. J. Lee, G. Subhash and G. Ravichandran, Constitutive Modeling of Textured Body Centered Cubic (BCC) Polycrystals, *International Journal of Plasticity*, 15, 625-645 (1999)
- J. Hodowany, G. Ravichandran, A. J. Rosakis and P. Rosakis, Partition of Plastic Work into Heat and Stored Energy in Metals, *Experimental Mechanics*, 40, 113-123 (2000)
- P. Rosakis, A. J. Rosakis, G. Ravichandran and J. Hodowany, A Thermodynamic Internal Variable Model for the Partition of Plastic Work into Heat and Stored Energy in Metals, *Journal of the Mechanics and Physics of Solids*, 48, 581-607 (2000)

- A. J. Rosakis and G. Ravichandran, Dynamic Failure Mechanics, *International Journal of Solids and Structures*, 37, 331-348 (2000)
- W. Chen and G. Ravichandran, Failure Mode Transition in Ceramics under Dynamic Loading, *International Journal of Fracture*, 101, 141-159 (2000)
- A. Venkert, P. R. Guduru and G. Ravichandran, Mechanisms of Dynamic Failure in High Strength Ductile Steels, *Metallurgical and Materials Transactions A*, 31, 1147-1154 (2000)
- E. Burcsu, G. Ravichandran and K. Bhattacharya, Large Strain Electrostrictive Actuation in Barium Titanate, *Applied Physics Letters*, 77, 1698-1700 (2000)
- A. T. Zehnder, P. R. Guduru, A. J. Rosakis and G. Ravichandran, Million Frames per Second Infrared Imaging System, *Review of Scientific Instruments*, 71, 3762-3768 (2000)
- K. Oguni, C. Y. Tan and G. Ravichandran, Failure Mode Transition in Unidirectional E-Glass/Vinylester Composites under Multiaxial Compression, *Journal of Composite Materials*, 34, 2081-2097 (2000)
- K. Oguni and G. Ravichandran, An Energy-Based Model of Longitudinal Splitting in Unidirectional Fiber Reinforced Composites, *Journal of Applied Mechanics*, 67, 437-443 (2000)
- K. Oguni and G. Ravichandran, Dynamic Compressive Behavior of Unidirectional E-Glass/Vinylester Composites, *Journal of Materials Science*, 36, 831-838 (2001)
- K. Oguni and G. Ravichandran, A Micromechanical Model for Failure of Unidirectional Fiber Reinforced Composites, *International Journal of Solids and Structures*, 38, 7215-7233 (2001)
- R. Vaidyanathan, M. Dao, G. Ravichandran and S. Suresh, Study of mechanical deformation in bulk metallic glass through instrumented indentation, *Acta Materialia*, 49, 3781-3789 (2001)
- P. R. Guduru, G. Ravichandran and A. J. Rosakis, Observations of transient high temperature vertical microstructures in solids during adiabatic shear banding, *Physical Review E*, 6403, 36128 (2001)
- P. R. Guduru, A. T. Zehnder, A. J. Rosakis and G. Ravichandran, Dynamic full field measurements of crack tip temperatures, *Engineering Fracture Mechanics*, 68, 1535-1556 (2001)
- S. Yadav, E. A. Repetto, G. Ravichandran and M. Ortiz, A computational study of the influence of thermal softening on ballistic penetration in metals, *International Journal of Impact Engineering*, 25, 787-803 (2001)
- P. R. Guduru, A. J. Rosakis and G. Ravichandran, Dynamic shear bands: an investigation using high speed optical and infrared diagnostics, *Mechanics of Materials*, 33, 371-402 (2001)
- A. Venkert, P. R. Guduru and G. Ravichandran, Effect of loading rate on fracture morphology in a high strength ductile steel, *Journal of Engineering Materials and Technology*, 123, 261- 267 (2001)
- D. Rittel, G. Ravichandran and S. Lee, Large strain constitutive behavior of OFHC copper over a wide range of strain rates using the shear compression specimen, *Mechanics of Materials*, 34, 627-642 (2002)
- S. Zhuang, J. Lu and G. Ravichandran, Shock wave response of a zirconium-based bulk metallic glass and its composite, *Applied Physics Letters*, 80, 4522-4524 (2002)
- D. Rittel, S. Lee and G. Ravichandran A shear-compression specimen for large strain testing, *Experimental Mechanics*, 42, 58-64 (2002)
- S. Yadav and G. Ravichandran, Penetration resistance of laminated ceramic/polymer structures, *International Journal of Impact Engineering*, 28, 557-574 (2003)
- S. Zhuang, G. Ravichandran and D. E. Grady, An Experimental Investigation of Shock Wave Propagation in Periodically Layered Composites, *Journal of the Mechanics and Physics of Solids*, 51, 245-265 (2003)

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