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### **PUBLICATIONS**

### MONOGRAPH, BOOK CHAPTERS, INVITED PUBLICATIONS, AND LECTURE NOTES:

- Rosakis, A.J., Rosakis, P.J.
   "Elements of Dislocation Theory and Plasticity," notes based on Graduate Level Courses in Plasticity (Caltech Ae/AM 223),1986
- Rosakis, A.J.

  "Two Optical Techniques Sensitive to Gradients of Optical Path Difference: The Method of Caustics and the Coherent Gradient Sensor (CGS)," *Experimental Techniques in Fracture* (J. Epstein, Ed.), Chapter 5, Vol. III, pp. 125-170, 1992 (**By Invitation**)
- Zehnder, A.T., Rosakis, A.J.
   "Temperature Rise at the Tip of Dynamically Propagating Cracks: Measurements using High Speed Infrared Detectors," *Experimental Techniques in Fracture* (J. Epstein, Ed.), Chapter 10, Vol. III, pp. 327-426, 1992 (By Invitation)
- 4 Liu, C., Rosakis, A.J.

  "Investigation of Transient Effects for Dynamically Initiating and Growing Cracks under Stress Wave Loading Conditions," *Dynamic Fracture Mechanics* (M.H. Aliabadi, Ed.), Chapter 4, Computational Mechanics Publications, 1995 (**Refereed**)
- Rosakis, A.J., Ravichandran, G.
  "Dynamic Failure Mechanics," *Research Trends in Solid Mechanics* (G.J. Dvorak, Ed.), AIP Press, *International Journal of Solids and Structures*, 37, 331-348, [GALCIT-SM Report 98-15] 2000 (Refereed)
- Rosakis, A.J.
   "Intersonic Shear Cracks and Fault Ruptures," Advances in Physics, 51, 1189-1257, 2002 (By Invitation)
- Rosakis, A.J., Huang, Y.

  "Intersonic Debonding," Comprehensive Structural Integrity Handbook, Fracture of Materials from Nano to Macro, Volume Chap8:
  Interfacial and Nanoscale Failure (W. Gerberich and W. Yang, Vol. Eds.), Elsevier Ltd., pp. 137-179, 2003 (By Invitation)
- 8 Rosakis, A.J., Owen, D.
  "Dynamic Constitutive Behavior and Dynamic Fracture of Dionysus-Pentelicon Marble" *Mechanics of Stones: Experimental Techniques and Modeling* (Y. Vardoulakis and G. Exadactylos, Eds.), Kluwer Academic Publishers, 2005 (By Invitation)
- 9 Rosakis, A. J., Lykotrafitis, G., Xia, K., Kanamori, H.
  "Dynamic Shear Rupture in Frictional Interfaces: Speeds, Directionality and Modes', *Treatise in Geophysics*, (G. Schubert, Editor-in-Chief) Vol. 4 *Earthquake Seismology*, (H. Kanamori, Volume Editor) Elsevier, 2007 (By Invitation)
- 10 Rosakis, A.J., Lambros, J.
  "Experimental Dynamic Failure Mechanics," Cambridge University Press, Cambridge Monographs on Mechanics. (Under Contract)
- Mello, M., Bhat, H.B., Rosakis, A. J., Kanamori, H., "Identifying the unique ground motion signatures of supershear earthquakes: Theory and experiments", Tectonophysics, 2011 Special Edition on Supershear Ruptures, Vol. 493, Issue 3-4, pp. 297-326 (S. Das and M. Bouchon, Editors) (By Invitation)
- Biegel, R. L., Bhat, H. S., Sammis, C. G., Rosakis, A. J
  "The Effect of Asymmetric Damage on Dynamic Shear Rupture Propagation I: No Mismatch in Bulk Elasticity", Tectonophysics,
  2011 Special Edition on Supershear Ruptures, Vol. 493, Issue 3-4, pp. 254-262 (**By Invitation**)
- Bhat, H. S., Biegel, R. L., Rosakis, A. J Sammis, C. G.
  "The Effect of Asymmetric Damage on Dynamic Shear Rupture Propagation II: With Mismatch in Bulk Elasticity", Tectonophysics, 2011 Special Edition on Supershear Ruptures, Vol. 493, Issue 3-4pp. 263-271 (By Invitation)

- 1 Rosakis, A.J.
  - "Determination of Intensity Factors at an Arched Crack Tip by the Method of Caustics," Strain, 15, 79-87, 1979
- 2 Rosakis, A.J.
  - "Analysis of the Optical Method of Caustics for Dynamic Crack Propagation," *Engineering Fracture Mechanics*, **13**, 331-347, (First published as a Brown Report ONR 79-1, March 1979.)
- 3 Rosakis, A.J.
  - "On the Uniqueness of Representation of the Stress Field of Plane Polygonal Dislocation Loops," *Scripta Metallurgica*, **14**, 1261-1265, (First published as a Brown Material Research Laboratory Report prepared for the National Science Foundation, NSF CME 1979-23742/1, August 1980.)
- 4 Rosakis, A.J. and Freund, L.B.
  - "The Effect of Crack-Tip Plasticity on the Determination of Dynamic Stress-Intensity Factors by the Optical Method of Caustics," *Journal of Applied Mechanics*, **48**, 302-308, 1981. (First published as a Brown Report ONR N00014-0051/5, September 1980.)
- Freund, L.B., Duffy, J. and Rosakis, A.J.
  "Dynamic Fracture Initiation in Metals and Preliminary Results on the Method of Caustics for Crack Propagation Measurements,"
  ASME Paper No. 81-PVP-15, 1-7, 1981
- 6 Rosakis, A.J. and Freund, L.B.
  - "Optical Measurement of the Plastic Strain Concentration at a Crack Tip in a Ductile Steel Plate," *Journal of Engineering Materials and Technology*, **104**, 115-120, 1982
- Rosakis, A.J., Ma, C.C. and Freund, L.B.
  "Analysis of the Optical Shadow Spot Method for a Tensile Crack in a Power-Law Hardening Material," *Journal of Applied Mechanics*, 50, 777-782, 1983
- 8 Rosakis, A.J., Duffy, J. and Freund, L.B.
  "The Determination of Dynamic Fracture Toughness of AISI 4340 Steel by the Shadow Spot Method," *Journal of the Mechanics and Physics of Solids*, 32, 443-460, 1984
- 9 Rosakis, A.J., Zehnder, A.T.
  "On the Method of Caustics: An Exact Analysis Based on Geometrical Optics," *Journal of Elasticity*, 15, 347-367, [GALCIT-SM Report 84-1], 1985
- 10 Rosakis, A.J. and Zehnder, A.T.
  "On the Dynamic Fracture of Structural Metals," *International Journal of Fracture*, Special Issue on Dynamic Fracture (M.L. Williams & W.G. Knauss, Eds.), Martinus Nijhoff Publishers, 27, 169-186, 1985

- 11 Rosakis, A.J. and Ravi-Chandar, K.
  - "On Crack-Tip Stress State: An Experimental Evaluation of Three-Dimensional Effects," *International Journal of Solids and Structures*, **22**, 121-134, [GALCIT-SM Report 84-2], 1986
- 12 Zehnder, A.T. and Rosakis, A.J.
  - "A Note on the Measurement of K and J under Small Scale Yielding Conditions Using the Method of Caustics," *International Journal of Fracture*, **30**, R43-R48, [GALCIT-SM Report 85-18], 1986
- 13 Knowles, J.K. and Rosakis, A.J.
  - "On the Scale of the Nonlinear Effect in a Crack Problem," *Journal of Applied Mechanics*, **53**, 545-549, [GALCIT-SM Report 85-28], 1986
- 14 Benitez, F.G. and Rosakis, A.J.
  - "Three-Dimensional Elastostatics of a Layer and a Layered Medium," *Journal of Elasticity*, **18**, 3-50, [GALCIT-SM Report 85-21], 1986
- 15 Narasimhan, R. and Rosakis, A.J.
  - "Reexamination of Jumps Across Quasi-Statically Propagating Surfaces Under Generalized Plane Stress in Anisotropically Hardening Elastic-Plastic Solids," *Journal of Applied Mechanics*, **54**, 519-524, [GALCIT-SM Report 86-3], 1987
- 16 Narasimhan, R., Rosakis, A.J. and Hall, J.F.
  - "A Finite Element Study of Stable Crack Growth Under Plane Stress Conditions: Part I- Elastic-Perfectly Plastic Solids," *Journal of Applied Mechanics*, **54**, 838-845, [GALCIT-SM Report 86-22], 1987
- 17 Narasimhan, R., Rosakis, A.J. and Hall, J.F.
  - "A Finite Element Study of Stable Crack Growth Under Plane Stress Conditions: Part II- Influence of Hardening," *Journal of Applied Mechanics*, **54**, 846-853 [GALCIT-SM Report 86-23], 1987
- 18 Benitez, F.G. and Rosakis, A.J.
  - "A Point Load in the Interior of a Thick Plate," Computers & Structures, 29, 69-87, 1988
- 19 Rosakis P.J. and Rosakis A.J.
  - "The Screw Dislocation Problem in Incompressible Finite Elastostatics: A Discussion of Nonlinear Effects," *Journal of Elasticity*, **20**, 3-40, [GALCIT-SM Report 86-5], 1988

- 20 Narasimhan, R. and Rosakis, A.J.
  "A Finite Element Analysis of Small-Scale Yielding Near a Stationary Crack Under Plane Stress", *Journal of the Mechanics and Physics of Solids*, 36, 77-117[GALCIT-SM Report 86-21], 1988
- Benitez, F.G. and Rosakis, A.J.
  "Force at a Point in the Interior of a Three-Dimensional Elastic Layer," *Quarterly Journal of Mechanics and Applied Mathematics*, 41, 83-95, 1988
- Rosakis, A.J., Zehnder, A.T., Narasimhan, R.
  "Caustics by Reflection and their Application to Elastic-Plastic and Dynamic Fracture Mechanics," *Optical Engineering*, 27, 596-610, 1988
- Zehnder, A.T., Rosakis, A.J. and Narasimhan, R.
  "Measurement of the J-Integral with Caustics: An Experimental and Numerical Investigation," Nonlinear Fracture Mechanics:
  Volume 1-Time Dependent Fracture, ASTM-STP 995, (A. Saxena, J.D. Landes and J.L.Bassani, Eds.), American Society for Testing and Materials, Philadelphia, pp. 318-339, [GALCIT-SM Report 86-8], 1989
- Narasimhan, R. and Rosakis, A.J.

  "Three-Dimensional Effects near a Crack Tip in a Ductile Three-Point Bend Specimen: Part I-A Numerical Investigation," *Journal of Applied Mechanics*, **57**, 607-617, [GALCIT-SM Report 88-6], 1990
- Zehnder, A.T. and Rosakis, A.J.
  "Three-Dimensional Effects near a Crack Tip in Ductile Three-Point Bend Specimen: Part II-An Experimental Investigation Using Interferometry and Caustics," *Journal of Applied Mechanics*, 57, 618-626, [GALCIT-SM Report 88-7], 1990
- Zehnder, A.T., Rosakis, A.J. and Krishnaswamy, S.
  "Dynamic Measurement of the J Integral in Ductile Metals: Comparison of Experimental and Numerical Techniques," *International Journal of Fracture*, Special Issue on Non-linear Fracture, Time Dependence (W.G. Knauss and A.J. Rosakis, Eds.), 42, 209-230, Also, Proceedings of the IUTAM Symposium on Recent Advances on Non-linear Fracture Mechanics, California Institute of Technology, March 14-16, 1988 1990
- Zehnder, A.T. and Rosakis, A.J.
  "Dynamic Fracture Initiation and Propagation in 4340 Steel Under Impact Loading," *International Journal of Fracture*, 43, 271-285, [GALCIT-SM Report 86-6], 1990
- Deng, X. and Rosakis, A.J.

  "Negative Plastic Flow and its Prevention in Elasto-Plastic Finite Element Computation," *Finite Elements in Analysis and Design*, 7, 181-191, [GALCIT-SM Report 90-10], 1990
- Rosakis, A.J., Krishnaswamy, S. and Tippur, H.V.

  "On the Application of the Optical Method of Caustics to the Investigation of Transient Elastodynamic Crack Problems: Limitations of the Classical Interpretation," *International Journal of Optics and Lasers in Engineering*, Special Issue on the Optical Method of Caustics (A.J. Rosakis, Guest Editor), 13, 183-210, [GALCIT-SM Report 90-2], 1990
- 30 Rosakis, A.J. and Zehnder, A.T. "Experimental Measurement of the Temperature Rise Generated During Dynamic Crack Growth in Metals," *Applied Mechanics Review*, **43**. Part 2, S260-S265, 1990

- Krishnaswamy, S. and Rosakis, A.J.

  "On the Extent of Dominance of Asymptotic Elastodynamic Crack-Tip Fields: Part I- An Experimental Study Using Bifocal Caustics," *Journal of Applied Mechanics*, **58**, 87-94, [GALCIT-SM Report 88-21], 1991
- Krishnaswamy, S., Rosakis, A.J. and Ravichandran, G.
  "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, [GALCIT-SM Report 88-22], 1991
- Zehnder, A.T. and Rosakis, A.J.
  "On the Temperature Distribution at the Vicinity of Dynamically Propagating Cracks in 4340 Steel," *Journal of the Mechanics and Physics of Solids*, 39, 385-415, [GALCIT-SM 89-2], 1991
- Tippur, H.V., Krishnaswamy, S. and Rosakis, A.J.
  "Dynamic Crack Propagation in Elastic-Perfectly Plastic Solids Under Plane Stress Conditions," *Journal of the Mechanics and Physics of Solids*, 39, 683-722, [GALCIT-SM Report 90-11], 1991
- Deng, X. and Rosakis, A.J.
  "Dynamic Crack Propagation in Elastic-Perfectly Plastic Solids Under Plane Stress Conditions," *Journal of the Mechanics and Physics of Solids*, 39, 683-722, [GALCIT-SM Report 90-11], 1991
- Tippur, H. V., Krishnaswamy, S. and Rosakis, A. J.
  "Optical Mapping of Crack Tip Deformations Using the Methods of Transmission and Reflection Coherent Gradient Sensing: A Study of Crack Tip K-Dominance," *International Journal of Fracture*, 52, 91-117, [GALCIT-SM Report 89-11], 1991

- Tippur, H.V. and Rosakis, A.J. "Quasi-Static and Dynamic Crack Growth Along Bimaterial Interfaces: A Note on Crack-Tip Field Measurements Using Coherent Gradient Sensing," *Journal of Experimental Mechanics*, **31**, 243-251,[GALCIT-SM Report 90-18], 1991
- Rosakis, A.J. and Liu, C., Freund, L.B.
  "A Note on the Asymptotic Stress Field of a Non-Uniformly Propagating Dynamic Crack," *International Journal of Fracture*, **50**, R39 R45, 1991
- Narasimhan, R., Rosakis, A.J., Moran, B.

  "A Three-Dimensional Numerical Investigation of Fracture Initiation by Ductile Failure Mechanisms in a 4340 Steel," *International Journal of Fracture*, **56**, 1-24, [GALCIT-SM Report 89-5], 1992
- Zehnder, A.T. and Rosakis, A.J.
  "A Note on the Use of High-Speed Infrared Detectors for the Measurement of Temperature Fields at the Vicinity of Dynamically Growing Cracks in 4340 Steel," *Journal of Applied Mechanics*, 59, 450-452, 1992
- Krishnaswamy, S., Tippur, H. V. and Rosakis, A. J. "Measurement of Transient Crack-Tip Deformation Fields Using the Method of Coherent Gradient Sensing," *Journal of the Mechanics and Physics of Solids*, 40, 339-372 [GALCIT-SM Report 90-1], 1992
- 42 Mason, J.J., Lambros, J. and Rosakis, A.J.
  "The Use of a Coherent Gradient Sensor in Dynamic Mixed-Mode Fracture Mechanics Experiments," *Journal of the Mechanics and Physics of Solids*, 40, 641-661[GALCIT-SM Report 90-21], 1992
- 43 Freund, L.B and Rosakis, A.J.
  "The Structure of the Near-Tip Field During Transient Elastodynamic Crack Growth," *Journal of the Mechanics and Physics of Solids*, 40, 699-719, 1992
- Deng, X. and Rosakis, A.J.

  "A Finite Element Investigation of Quasi-Static and Dynamic Asymptotic Crack-Tip Fields in Hardening Elastic-Plastic Solids
  Under Plane Stress; Part I: Crack Growth in Linear Hardening Materials," *International Journal of Fracture*, **57**, 291-308,

  [GALCIT-SM Report 90-12], 1992
- Deng, X. and Rosakis, A.J.

  "A Finite Element Investigation of Quasi-Static and Dynamic Asymptotic Crack-Tip Fields in Hardening Elastic-Plastic Solids
  Under Plane Stress; Part II: Crack Growth in Power-Law Hardening Materials," *International Journal of Fracture*, **58**, 137-156,.

  [GALCIT-SM Report 90-13], 1992
- Bruck, H.A. and Rosakis, A.J.
  "On the Sensitivity of Coherent Gradient Sensing: Part I-A Theoretical Investigation of Accuracy in Fracture Mechanics Applications," Optics and Lasers in Engineering, 17, 83-101, [GALCIT-SM Report 91-6], 1992
- Liu, C., Rosakis, A.J. and Freund, L.B.

  "The Interpretation of Optical Caustics in the Presence of Dynamic Non-Uniform Crack-Tip Motion Histories: A Study Based on a Higher Order Transient Crack-Tip Expansion," *International Journal of Solids and Structures*, **30**, 875-897, 1993
- Bruck, H.A. and Rosakis, A.J.

  "On the Sensitivity of Coherent Gradient Sensing: Part II-An Experimental Investigation of Accuracy in Fracture Mechanics Applications," *Optics and Lasers in Engineering*, **18**, 25-51, [GALCIT-SM Report 91-8], 1993
- 49 Benitez, F.G., Lu, L. and Rosakis, A.J.
  "A Boundary Element Formulation Based on the Three-Dimensional Elastostatic Fundamental Solution for the Infinite Layer: Part I-Theoretical and Numerical Development," *International Journal for Numerical Methods in Engineering*, 36, 3097-3130, 1993
- Lu, L., Benitez, F.G. and Rosakis, A.J
   "A Boundary Element Formulation Based on the Three-Dimensional Elastostatic Fundamental Solution for the Infinite Layer: Part II
   Three-Dimensional Examples," *International Journal for Numerical Methods in Engineering*, 36, 3131-3159, 1993
- Rosakis, A.J.
  "Two Optical Techniques Sensitive to Gradients of Optical Path Difference: The Method of Caustics and the Coherent Gradient Sensor (CGS)," *Experimental Techniques in Fracture* (J. Epstein, Ed.), Chapter 10, pp. 327-425, 1993
- Zehnder, A.T., Rosakis, A.J.
  "Temperature Rise at the Tip of Dynamically Propagating Cracks: Measurements Using High-Speed Infrared Detectors,"
  Experimental Techniques in Fracture (J. Epstein, Ed.), Chapter 5, pp. 125-169, 1993
- Rosakis, A.J., Mason, J.J. and Ravichandran, G.

  "The Conversion of Plastic Work to Heat Around a Dynamically Propagating Crack in Metals," *Journal of the Mechanical Behavior of Materials* (B.-Z. Weiss and E.C. Aifantis, Eds.), Proceedings of the International Conference on the Mechanics, Physics and Structure of Materials: A Celebration of Aristotle's 23 Centuries, Part 4: Mechanical Aspects, II, Vol. 4, No. 4, 375-385, 1993
- 54 Lee, Y.J. and Rosakis, A.J.
  "Interfacial Cracks in Plates: A Three-Dimensional Numerical Investigation," *International Journal of Solids and Structures*, 30, 3139-3158, 1993

- Mason, J.J., and Rosakis, A.J"The Effects of Hyperbolic Heat Conduction Around a Dynamically Propagating Crack Tip," Mech. of Materials, 15, 263-278, 1993
- Rosakis, A.J.

  "Application of Coherent Gradient Sensing (CGS) to the Investigation of Dynamic Fracture Problems," Special Issue of *Optics and Lasers in Engineering* devoted to Photomechanics Applied to Dynamic Response of Materials (A. Shukla, Guest Ed.), **19**, 3-41, 1993
- 57 Liu, C., Lambros, J. and Rosakis, A.J.
  "Highly Transient Elastodynamic Crack Growth in a Bimaterial Interface: Higher Order Asymptotic Analysis and Optical Experiments," *Journal of the Mechanics and Physics of Solids*, 41, 1887-1954, 1993
- Mason, J.J. and Rosakis, A.J.
  "On the Dependence of the Dynamic Crack Tip Temperature Fields in Metals Upon Crack Tip Velocity and Material Parameters,"
  Mechanics of Materials, 16, 337-350, 1993
- Deng, X., Rosakis, A.J. and Krishnaswamy, S.
  "Dynamic Crack Propagation in Elastic-Plastic Solids Under Non-K-Dominance Conditions," *European Journal of Mechanics and Solids*, 13, 327-350, [GALCIT-SM Report 90-14], 1994
- Mason, J.J., Rosakis, A.J. and Ravichandran, G.
  "On the Strain and Strain Rate Dependence of the Fraction 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
- Bruck, H.A., Christman, T., Rosakis, A.J. and Johnson, W.L. "Quasi-Static Constitutive Behavior of  $Zr_{41.25}Ti_{13.75}Ni_{10}Cu_{12.5}Be_{22.5}$  Bulk Amorphous Alloys," *Scripta Metallurgica et Materialia*, **30**, 429-434, 1994
- 62 Liu, C. and Rosakis, A.J.
  "On the Higher Order Asymptotic Analysis of a Non-Uniformly Propagating Dynamic Crack Along an Arbitrary Path," *Journal of Elasticity*, 35, 27-60, 1994
- Liu, C. and Rosakis, A.J.
  "Investigation of Transient Effects for Dynamically Initiating and Growing Cracks Under Stress Wave Loading Conditions,"
  Dynamic Fracture Mechanics (M.H. Aliabadi, Ed.), Computational Mechanics Publication, Southhampton, UK; Boston, USA, Chapter 4, 1994
- Mason, J.J., Rosakis, A.J. and Ravichandran, G.
  "Full Field Measurements of the Dynamic Deformation Field Around a Growing Adiabatic Shear Band at the Tip of a Dynamically Loaded Crack or Notch," *Journal of the Mechanics and Physics of Solids*, 42, 1679-1697, 1994
- 65 Lambros, J. and Rosakis, A.J.
  "Dynamic Decohesion of Bimaterials: Experimental Observations and Failure Criteria," *International Journal of Solids and Structures*, Special Volume devoted to Dynamic Failure Mechanics of Modern Materials (A.J. Rosakis, A. Shukla and Y.D.S. Rajapakse, Eds.), 32, 2677-2702, 1995
- 66 Lambros, J. and Rosakis, A.J.
  "Development of a Dynamic Decohesion Criterion for Subsonic Fracture of the Interface Between Two Dissimilar Materials,"
  Proceedings of the Royal Society of London, 451, 711-736, 1995
- 67 Lambros, J. and Rosakis, A.J.
  "Shear Dominated Transonic Interfacial Crack Growth in a Bimaterial-I. Experimental Observations," *Journal of the Mechanics and Physics of Solids*, 43, 169-188, 1995
- 68 Liu, C., Huang, Y. and Rosakis, A.J.
  "Shear Dominated Transonic Interfacial Crack Growth in a Bimaterial-II. Asymptotic Fields and Favorable Velocity Regimes,"
  Journal of the Mechanics and Physics of Solids, 43, 189-206, 1995

- Lee. Y.J., Lambros, J. and Rosakis, A.J.
   "Analysis of Coherent Gradient Sensing (CGS) by Fourier Optics," *Optics and Lasers in Engineering*, 25, 25-53, 1996
- 70 Li, W, Deng, X. and Rosakis, A.J.
  "Determination of Temperature Field Around a Rapidly Moving Crack-Tip in an Elastic-Plastic Solid," *International Journal of Heat Mass Transfer*, 39, 677-690, 1996
- Bruck, H.A., Rosakis, A.J. and Johnson, W.L "The Dynamic Compressive Behavior of Beryllium Bearing Bulk Metallic Glasses," *J. of Materials Research*, **11**, 503-511, 1996
- 72 Zhou, M., Rosakis, A.J. and Ravichandran, G.
  "Dynamically Propagating Shear Bands in Impact-Loaded Prenotched Plates-I. Experimental Investigations of Temperature Signatures and Propagation Speed," *Journal of the Mechanics and Physics of Solids*, 44, 981-1006, 1996

- Zhou, M., Ravichandran, G. And Rosakis, A.J.
  "Dynamically Propagating Shear Bands in Impact-Loaded Prenotched Plates-II. Numerical Simulations," *Journal of the Mechanics and Physics of Solids*, 44, 1007-1032, 1996
- 74 Huang, Y., Liu, C. and Rosakis, A.J.
  "Transonic Crack Growth Along a Bimaterial Interface: An Investigation of the Asymptotic Structure of Near-Tip Fields,"
  International Journal of Solids and Structures, 33, 2625- 2645, 1996
- 75 Lambros, J. and Rosakis, A.J.
  "Dynamic Crack Initiation and Growth in Thick Unidirectional Graphite/Epoxy Plates," *Journal of Composites Science and Technology*, 57, 55-65, 1997
- Singh, R., Lambros, J., Shukla, A. and Rosakis, A.J.
  "Investigation of the Mechanics of Intersonic Crack Propagation Along a Bimaterial Interface Using Coherent Gradient Sensing and Photoelasticity" *Proceedings of the Royal Society of London A*, 453, 2649-2667, 1997
- 77 Lambros, J. and Rosakis, A.J.
  "An Experimental Study of Dynamic Delamination of Thick Fiber Reinforced Polymeric Matrix Composites," *Journal of Experimental Mechanics*, 37, 360-366, 1997
- Conner, R.D., Rosakis, A.J., Johnson, W.L. and Owen, D.M "Fracture Toughness Determination for a Beryllium-Bearing Bulk Metallic Glass," *Scripta Materialia*, 37,1373-1378, 1997
- Huang, Y., Wang, W., Liu, C. and Rosakis, A.J.
  "Intersonic Crack Growth in Bimaterial Interfaces: An Investigation of Crack Face Contact," *Journal of the Mechanics and Physics of Solids*, 46, 2233-2259, 1998
- 80 Zhou, M., Rosakis, A.J. and Ravichandran, G.
  "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
- Rosakis, A.J., Singh, R.P., Tsuji, Y., Kolawa, E. and Moore, Jr, N.R. "Full Field Measurements of Curvature Using Coherent Gradient Sensing: Application to Thin Film Characterization," *Thin Solid Films*, **325**, 42-54, 1998
- Rosakis, A.J., Samudrala, O., Singh, R.P. and Shukla, A.

  "Intersonic Crack Propagation in Bimaterial Systems," *Journal of the Mechanics of Physics of Solids*, Special Volume on Dynamic Deformation and Failure Mechanics of Materials (G. Ravichandran, A.J. Rosakis, M. Ortiz, Y.D.S. Rajapakse and K. Iyer, Guest Editors), 46, 1789-1813, 1998
- Guduru, P.R., Singh, R.P., Ravichandran, G. and Rosakis, A.J.
  "Dynamic Crack Initiation in Ductile Steels," *Journal of the Mechanics of Physics of Solids*, Special Volume on Dynamic Deformation and Failure Mechanics of Materials (G. Ravichandran, A.J. Rosakis, M. Ortiz, Y.D.S. Rajapakse and K. Iyer, Guest Editors), 46, 1997-2016, 1998
- Owen, D.M., Zhuang, S., Rosakis, A.J. and Ravichandran, G.

  "Experimental Determination of Dynamic Crack Initiation and Propagation Fracture Toughness in Thin Aluminum Sheets,"

  International J. of Fracture, Special Volume on Experimental Dynamic Fracture (W.G. Knauss, Guest Editor), 90, 153-174, 1998
- Liu, C., Knauss, W.G. and Rosakis, A.J.
  "Loading Rates and the Dynamic Initiation Toughness in Brittle Solids," *International Journal of Fracture*, Special Volume on Experimental Dynamic Fracture (W.G. Knauss, Guest Editor), 90, 103-118, 1998
- 86 Kavaturu, M., Shukla, A. and Rosakis, A.J.
  "Intersonic Crack Propagation Along Interfaces: Experimental Observations and Analysis," *Journal of Experimental Mechanics*, 38, 218-225, 1998
- Wang, W., Huang, Y., Rosakis, A.J. and Liu, C.
  "Effect of Elastic Mismatch in Intersonic Crack Propagation Along a Bimaterial Interface," *Engineering Fracture Mechanics*, 61, 471-485, 1998
- Liu, C., Rosakis, A.J., Ellis, R.W. and Stout, M.G.
  "A Study of the Fracture Behavior of Unidirectional Fiber-Reinforced Composites using Coherent Gradient Sensing (CGS)
  Interferometry," *International Journal of Fracture*, 90, 355-382, 1998
- Rosakis, A.J., Samudrala, O. and Coker, D."Cracks Faster than Shear Wave Speed," *Science*, 284, 1337-1340, [GALCIT-SM Report 98-17], 1999
- Gao, H., Huang, Y., Gumbsch, P. and Rosakis, A.J."On Radiation-Free Transonic Motion of Cracks and Dislocations," *J. of the Mechanics and Physics of Solids*, 47, 1941-1961, 1999
- 91 Huang, Y., Wang, W., Liu, C. and Rosakis, A.J.
  "Analysis of Intersonic Crack Growth in Unidirectional Fiber-Reinforced Composites," *Journal of the Mechanics and Physics of Solids*, 47, 1893-1916, 1999

- Needleman, A. and Rosakis, A.J.
  "The Effect of Bond Strength and Loading Rate on the Attainment of Intersonic Crack Growth in Interfaces," *Journal of the Mechanics and Physics of Solids*, 47, 2411-2449, 1999
- Rosakis, A.J. and Ravichandran, G.
  "Dynamic Failure Mechanics," Research Trends in Solid Mechanics, (G.J. Dvorak, Guest Ed.), AIP Press, International Journal of Solids and Structures, 37, 331-348 [GALCIT-SM Report 98-15], 2000
- 94 Rosakis, P., Rosakis, A.J., Ravichandran, G. and Hodowany, J.
  "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, [GALCIT-SM Report 98-8], 2000
- Hodowany, J., Ravichandran, G., Rosakis, A.J. and Rosakis, P.
  "Partition of Plastic Work into Heat and Stored Energy in Metals," *Journal of Experimental Mechanics*, 40, 113-123 [GALCIT-SM Report 98-7], 2000
- 96 Pandolfi, A., Guduru, P.R., Ortiz, M. and Rosakis, A.J.
  "Three Dimensional Cohesive-Element Analysis and Experiments of Dynamic Fracture in C300 Steel," *International Journal of Solids and Structures*, 37, 3733-3760, 2000
- 97 Rosakis, A.J., Samudrala, O. and Coker, D.
  "Intersonic Shear Crack Growth Along Weak Planes," *Materials Research Innovations*, 3, 236-243, 2000
- Rosakis, A.J., Coker, D. and Huang, Y.Y.
  "Subsonic and Intersonic Dynamic Crack Growth in Unidirectional Composites," *Society of Manufacturing Engineers*, Technical Paper #EM00-247, 1-10, 2000
- Zehnder, A.T., Guduru, P.R., Rosakis, A.J. and Ravichandran, G
  "Million Frames Per Second Infrared Imaging System," Review of Scientific Instruments, 71, 3762-3768 [GALCIT-SM Report 00-8], 2000
- 100 Rosakis, A.J. "Speed Dependence and Crack Addiction," Caltech *Engineering & Science* Magazine, Volume LXIII, Number 2, 30-38, 2000

- 101 Coker, D. and Rosakis, A.J.
  "Experimental Observations of Intersonic Crack Growth in Asymmetrically Loaded Unidirectional Composites Plates,"
  Philosophical Magazine A, 81, 571-595 [GALCIT-SM Report 98-16], 2001
- Lee, H., Rosakis, A.J. and Freund, L.B.
  "Full Field Optical Measurement of Curvatures in Ultra-Thin-Film-Substrate Systems in the Range of Geometrically Nonlinear Deformations," *Journal of Applied Physics*, 89, 6116-6129 [GALCIT-SM Report 00-10], 2001
- Boyd, D.A., Gallivan, M. A., Tripathi, A.B., Rosakis, A. J., Gowin, D. G. and Atwater, H.A. "Real-time, In Situ Curvature Measurement During Growth of Epitaxial YBCO Films on MgO", MRS Symposium Proc. Series, 616, p 616, 2001
- Guduru, P.R., Rosakis A.J. and Ravichandran, G.
   "Dynamic Shear Bands: An Investigation Using High Speed Optical and Infrared Diagnostics," *Mechanics of Materials*, 33, 371-402
   [GALCIT-SM Report 00-11], 2001
- Bouchon, M., Bouin, M.-P., Karabulut, H., Nafi Toksöz, M., Dietrich, M. and Rosakis, A.J.
  "How Fast is Rupture During an Earthquake? New Insights from the 1999 Turkey Earthquakes," *Geophysical Research Letters*, 28, 2723-2726, 2001
- Guduru, P.R., Zehnder, A.T., Rosakis, A.J. and Ravichandran, G.
  "Dynamic Full Field Measurements of Crack Tip Temperatures," *Engineering Fracture Mechanics*, 68, 1535-1556, [GALCIT-SM Report 00-12], 2001
- Guduru, P.R., Ravichandran, G., Rosakis A.J.

  "Observations of Transient High Temperature Vortical Microstructures in Solids During Adiabatic Shear Banding," *Physical Review E*, **64**, 036128-1-6, [GALCIT-SM Report 00-9], 2001
- Singh, R.P. and Rosakis, A.J.
  "Determination of the Yield Properties of Thin Films Using Enhanced Coherent Gradient Sensing," *Journal of Experimental Mechanics*, 41 [GALCIT-SM Report 00-15], 2001
- Li, S., Liu, W.-K., Qian, D., Guduru, P.R. and Rosakis, A.J.
   "Dynamic Shear Band Propagation and Micro-Structure of Adiabatic Shear Band," Computer Methods in Applied Mechanics and Engineering, 191, 73-92 [GALCIT-SM Report 00-16], 2001
- Li, S., Liu, W.-K., Rosakis, A.J., Belytschko, T. and Hao, W.
  "Mesh-Free Galerkin Simulations of Dynamic Shear Band Propagation and Failure Mode Transition," *International Journal of Solids and Structures*, 39, 1213-1240, 2002

- Samudrala, O., Huang, Y. and Rosakis, A.J.
  "Subsonic and Intersonic Mode II Crack Propagation with a Rate-Dependent Cohesive Zone," *Journal of the Mechanics and Physics of Solids*, 50, 1231-1268 [GALCIT-SM Report 00-1], 2002
- 112 Rosakis, A.J.
  "Intersonic Shear Cracks and Fault Ruptures," Advances in Physics, 51, 1189-1257, 2002
- 13 Xu, L. and Rosakis, A.J.
  "Impact Failure Characteristics in Sandwich Structures; Part I: Basic Failure Mode Selection," *International Journal of Solids and Structures*, 39, 4215-4235 [GALCIT-SM Report 00-6], 2002
- 114 Xu, L. and Rosakis, A.J.
  "Impact Failure Characteristics in Sandwich Structures; Part II: Effects of Impact Speed and Interfacial Strength," *International Journal of Solids and Structures*, 39, 4237-4248 [GALCIT-SM Report 00-7], 2002
- Yu, C., Pandolfi, A., Ortiz, M., Coker, D. and Rosakis, A.J.
  "Three-Dimensional Modeling of Intersonic Shear-Crack Growth in Asymmetrically Loaded Unidirectional Composite Plates,"
  International Journal of Solids and Structures, 39, 6135-6157 [GALCIT-SM Report 01-1], 2002
- Bouchon, M. and Rosakis, A.J.

  "Reply to Comment on 'How Fast is Rupture During an Earthquake?' New Insights from the 1999 Turkey Earthquakes,"

  Geophysical Research Letters, 29, 1243, 2002
- Xu, L.R., Huang, Y.Y. and Rosakis, A.J.
  "Dynamic Crack Deflection and Penetration at Interfaces in Homogeneous Materials: Experimental Studies and Model Predictions,"
  Journal of the Mechanics and Physics of Solids, 51, 461-486, 2003. [GALCIT-SM Report 00-5], 2002
- Guo, G., Yang, W., Huang, Y. and Rosakis, A "Sudden Deceleration or Acceleration of an Intersonic Shear Crack," *J. of the Mechanics and Physics of Solids*, **51**, 311-331, 2003
- Samudrala, O., Huang, Y. and Rosakis, A.J.

  "Subsonic and Intersonic Shear Rupture of Weak Planes with a Velocity Weakening Cohesive Zone," *Journal of Geophysical Research*, **107**, 7-1 7-32 [GALCIT-SM Report 00-2], 2003
- 120 Samudrala, O. and Rosakis, A.J.
  "Effect of Loading and Geometry on the Subsonic/Intersonic Transition of a Bimaterial Interface Crack," *Engineering Fracture Mechanics*, 70, 309-337 [GALCIT-SM Report 01-14], 2003
- 121 Coker, D., Rosakis, A.J. and Needleman, A.
  "Dynamic Crack Growth Along a Polymer Composite-Homalite Interface," *Journal of the Mechanics and Physics of Solids*, **51**, 425-460, 2003
- 122 Rosakis, A.J.

  "High Speed Failure Phenomena in Heterogeneous Material Systems at All Length Scales A Revival!," *Experimental Techniques*"Trends in Experimental Mechanics," 27, 1,12,14, 2003
- 123 Xu, L.R. and Rosakis, A.J.

  "Real-Time Experimental Investigation of Dynamic Crack Branching Using High-Speed Optical Diagnostics," *Experimental Techniques*, 2001 SEM Student Paper Competition Winner 2<sup>nd</sup> Place, 27, 23-26, 2003
- Rousseau, C.-E. and Rosakis, A.J.
  "On the Influence of Fault Bends on the Growth of Sub-Rayleigh and Intersonic Dynamic Shear Ruptures, *Journal of Geophysical Research*, **108**, 2411-2431 [GALCIT-SM Report 03-01], 2003
- Xu, L.R. and Rosakis, A.J.
  "An Experimental Study of Impact Induced Failure Events in Homogeneous Layered Materials Using Dynamic Photoelasticity and High-Speed Photography," Optics and Lasers in Engineering, 40, 263-288 [GALCIT-SM Report 01-2], 2003
- Yu, C., Ortiz, M. and A.J. Rosakis
   "3-D Modelling of Impact Failure in Sandwich Structures," Fracture of Polymers Composites and Adhesives II
   (B. Blackman, A. Pavan and J.G. Williams, Eds.), Section 3.4 Composites Modelling, pp. 527-538, 2003
- Park, T.-S., Suresh, S., Rosakis, A.J. and Ryu, J.

  "Measurement of Full-Field Curvature and Geometrical Instability of Thin Film-Substrate Systems through CGS Interferometry,"

  Journal of the Mechanics of Physics of Solids, Special Volume on Dynamic Failure and Thin Film Mechanics, 51, Issues 11-12, 2191-2211 (A.J. Rosakis, G. Ravichandran and S. Suresh, Guest Editors), 2003
- 128 Rosakis, A. J., Ravichandran, D. and Suresh, S.
  "Dedication", *Journal of the Mechanics and Physics of Solids*, **51**, Issues 11-12, , Page v, 2003
- Xia, K., Rosakis, A.J. and Kanamori, H."Laboratory Earthquakes: The Sub-Rayleigh-to-Supershear Rupture Transition," *Science*, 303, Issue 5665,1859-1861, 2004
- Hao, S., Liu, W.K., Klein, P. and Rosakis, A.
  "Modeling and Simulation of Intersonic Crack Growth," *International Journal of Solids and Structures*", 41, Issue 7,1773-1799, 2004

- Anderson, D.D. and Rosakis, A.J.

  "Comparison of Three Real Time Measurement Techniques for the Measurement of Dynamic Fracture Initiation Toughness in Metals," *Engineering Fracture Mechanics*, **72**, Issue 4, 535-555, 2005
- 132 Xia, K., Rosakis, A.J. and Kanamori, H. "Supershear and Sub-Rayleigh-Intersonic Transition Observed in Laboratory Earthquake Experiments," *Experimental Techniques*, **29** (3), 63-66, 2005
- 133 Coker, D. Lykotrafitis, G., Needleman, A. and Rosakis, A.J. "Frictional Sliding modes along an interface between identical elastic plates subject to shear impact loading" *Journal of the Mechanics of Physics of Solids*, 53, Issue 4, 884-922, 2005
- 134 Xia, K., Rosakis, A.J., Kanamori, H. and Rice, J.R "Laboratory Earthquakes along Inhomogeneous Faults: Directionality and Supershear", *Science*, Vol. 308, Issue 5722, 681-684, 2005
- Needleman, A., Coker, D. and Rosakis, A. J.
  "Fast Crack Growth Along Interfaces" *Latin American Journal of Solids and Structures*, 2, 5-15, 2005
- Huang, Y. and Rosakis, A.J.
  "Extension of Stoney's Formula to Non-uniform Temperature Distributions in Thin Film/Substrate Systems. The Case of Radial Symmetry", *Journal of the Mechanics and Physics of Solids*, 53, pp 2483-2500, 2005
- Huang, Y., Ngo, D. and Rosakis, A.J.
  "Non-uniform, Axisymmetric Misfit Strain in Thin Films Bonded on Plate Substrates/Substrate Systems: The Relation between Non-Uniform Film Stresses & System Curvatures", *Acta Mechanica Sinica*, 21, pp 362-370, 2005
- 138 Rittel, D. and Rosakis, A.J.
  "Dynamic Fracture of Berylium-Bearing Bulk Metallic Glass Systems: A Cross-Technique Comparison" Engineering Fracture Mechanics, 72, 1905-1919, 2005
- L. R. Xu, and Rosakis, A. J.
  "Impact Damage Visualization of Heterogeneous Two-Layer Materials Subjected to Low-speed Impact," *International Journal of Damage Mechanics*, Vol. 14, pp.215-233, 2005

- 140 Anderson, D.D. and Rosakis, A. J. "Dynamic Fracture Properties of Titanium Alloys" Experimental Mechanics, 46:3, 1-8, 2006
- 141 Xia, K., Chalivendra, V. B. and Rosakis, A.J. "Spontaneous Mixed-Mode Fracture in Bonded Similar and Dissimilar Materials", Experimental Mechanics, 46: 163-171, 2006
- Lykotrafitis, G. Rosakis, A. J. and Ravichandran, G.
  "Particle Velocimetry and Photoelasticity Applied to the Study of Dynamic Sliding Along Frictionally-Held Bimaterial Interfaces: Techniques and Feasibility", SEM Experimental Mechanics, 46: 205-216, 2006
- Kanamori, H., Xia, K. and Rosakis, A.J.
   "Laboratory Earthquakes", *International Journal of Fracture*, Special Edition, 138: 211-218, 2006
- Brown, M, Park, T-S., Rosakis, A., Ustundag, E., Huang, Y., Tamura, N. and Valek, B.

  "A Comparison of X-ray Microdiffraction and Coherent Gradient Sensing in Measuring Discontinuous Curvatures in Thin Film –
  Substrate Systems", *J. of Applied Mechanics (ASME Transactions)*, **73**, pp 723-729, Special Vol. –W.G. Knauss Symposium, 2006
- Lykotrafitis, G., Rosakis, A. J. and Ravichandran, G. "Self-healing, pulse-like, shear ruptures in the laboratory", *Science*, Vol. 313, 1765-1768, 2006
- Lykotrafitis, G. and Rosakis, A. J.
  "Dynamic sliding of frictionally held bimaterial interfaces subjected to impact shear loading", *Proceedings of the Royal Society A*, 462, 2997-3026, 2006
- Lykotrafitis, G. and Rosakis, A.J.
  "Sliding along frictionally held incoherent interfaces of homogeneous systems subjected to dynamic shear loading: a photoelastic study", *International Journal of Fracture*, Vol. 140, 213-233, 2006
- 148 Ngo, D., Feng, X., Huang, Y., Rosakis, A.J. and Brown, M.A.

  "Thin Film/Substrate Systems Featuring Arbitrary Film Thickness and Misfit Strain Distributions: **Part I**. Analysis for Obtaining Film Stress from Non-Local Curvature Information,", International Journal of Solids and Structures, Vol. **44**, 1745-1754, 2006
- Brown, M., Rosakis, A.J., Feng, X., Huang, Y. and Üstündag, E.

  "Thin film/Substrate Systems Featuring Arbitrary Film Thickness and Misfit Strain Distributions: **Part II**. Experimental Validation of the Non-Local Stress/Curvature Relations,", *International Journal of Solids and Structures*, Vol. **44**, 1755-1767, 2006

- Yang, Q.D., Rosakis, A.J. and Cox, B.N.
   "Dynamic Fiber Sliding along Debonded, Frictional Interfaces", *The Proceedings of the Royal Society*, Vol. 462, 1081-1106, 2006
- Xia, K., Chalivendra, V. B. and Rosakis, A.J."Observing Self-similar Crack Growth in Experiments", *Engineering Fracture Mechanics*, Vol. 73, 2748-2755, 2006
- 152 Ngo, D., Huang, Y., Rosakis, A.J. and Feng, X. "Spatially Non-Uniform, Isotropic Misfit Strain in Thin Films Bonded on Plate Substrates: The Relation between non-uniform film stresses and system curvatures, *Thin Solid Films*, Vol. **515**, 2220-2229, 2006
- Arias, I., Knap, J., Chalivendra, V. B., Hong, S., Ortiz, M. and Rosakis, A.
  "Numerical modeling and experimental validation of dynamic fracture events along weak planes," *Computational Methods in Applied Mechanics and Engineering* Vol. 196, 3833-3940, 2007
- Feng, X., Huang, Y., Jiang, H., Ngo, D., and Rosakis A.J.

  "The Effect of Thin Film/Substrate Radii on the Stoney Formula for Thin Film/Substrate Subjected to Non-uniform Axisymmetric Misfit Strain and Temperature", *Journal of the Mechanics of Materials and Structures*, Vol. 1, pp 1041-1054, 2006
- Rosakis, A. J., Lykotrafitis, G., Xia, K. and Kanamori, H.
  "Dynamic Shear Rupture in Frictional Interfaces: Speeds, Directionality and Modes', *Treatise in Geophysics*, (G. Schubert, Editorin-Chief) Vol. 4 *Earthquake Seismology*, (H. Kanamori, Volume Editor) Elsevier, October 15, 2007
- Lu, X., Lapusta, N., and Rosakis, A.J.
  "Pulse and Crack-like Ruptures in Experiments Mimicking Crustal Earthquakes", The Proceedings of the National Academy of Sciences USA (PNAS), Vol. 104, No. 48, 18931-18936, 2007. (DOI: 10.1073/pnas.0704268104)
- Biegel, R.L., Sammis, C.G., and Rosakis, A. J
   "Interaction of a Dynamic Rupture on a Fault Plane with Short Frictionless Fault Branches", *Pure and Applied Geophysics*, Vol. 164, pp 1881-1904, (DOI 10.1007/s00024-007-0251-2), 2007
- Huang, Y, Ngo, D., Feng, X. and Rosakis, A.
  "Anisotropic, Non-uniform Misfit Strain in a Thin Film Bonded on a Plate Substrate", *Interaction and Multiscale Mechanics*, Vol. 1, No. 1, pp 123-142, 2007
- Huang, Y. and Rosakis, A.J.
  "Extension of Stoney's Formula to Arbitrary Temperature Distributions in Thin Film/Substrate Systems", *Journal of Applied Mechanics*, Vol. 74, pp 1225-1233, 2007
- 160 Feng, X., Huang, Y. and Rosakis, A. J.
  "On the Stoney Formula for a Thin Film/Substrate System with Non-uniform Substrate Thickness", *Journal of Applied Mechanics-Transactions of the ASME*, Vol. 74, pp 1276 -1281, 2007
- 161 Feng, X., Huang, Y. and Rosakis, A.J. "Multi-layer thin films/substrate system subjected to non-uniform misfit strains", *International Journal of Solids and Structures*, Vol. 45, pp 3688-3698, 2007
- Chalivendra, V. B., and Rosakis, A.J."Interaction of dynamic mode-I cracks with inclined interfaces", *Engineering Fracture Mechanics*, Vol. 75, pp 2385-2397, 2008
- Biegel, R., Sammis, C. and Rosakis, A.
  An experimental study of the effect of off-fault damage on the velocity of a slip pulse, J. Geophys. Res., Vol. 113, 2008
- 164 Feng, X., Huang, Y. and Rosakis, A. J. "Stresses in a Multilayer Thin Film/Substrate System Subjected to Nonuniform Temperature", *Journal of Applied Mechanics*, Vol. 75, 2008
- Mello, M., Hong, S. and Rosakis, A.J.

  "Extension of the Coherent Gradient Sensor (CGS) to the Combined Measurement of In-Plane and Out-of-Plane Displacement Field Gradients", *Experimental Mechanics*, Special Edition, 2008
- Park, T-S., Dao, M., Suresh, S., Rosakis, A.J., Pantuso, D. and Shankar S.
   "Some Practical Issues of Curvature and Thermal Stress in Realistic Multi-level Metal Interconnect Structures" *Journal of Electronic Materials*, Vol. 37, No. 6. pp 777 791, 2008
- 167 Xia, K.W., Rousseau, C. and Rosakis, A.J.
  "Experimental investigations of spontaneous bimaterial interfacial fractures", *Journal of Mechanics of Materials and Structures*, Vol. 29 (3), 173-184, 2008
- 168 Chalivendra, V., Hong, S., Arias, I., Knap, J., Rosakis, A. and Ortiz, M. "Experimental validation of large-scale simulations of dynamic fracture along weak planes", *International Journal of Impact Engineering*, Vol. 30, pp. 888-889, 2009
- Lu, X., Lapusta, N. and Rosakis, A.J.
  "Analysis of supershear transition regimes in rupture experiments: the effect of nucleation conditions and friction parameters", Geophysical Journal International, Vol. 177, pp. 717-732, (DOI: 10.1111/j.1365-246X.2009.04091.x), 2009

- 170 Templeton, E.L., Baudet, A., Bhat, H.S., Dmowska, R., Rice, J. R., Rosakis, A. J, Rousseau, C-E "Finite Element Simulations of Dynamic Shear Rupture Experiments and Dynamic Path Selection Along Kinked and Branched Faults", *Journal of Geophysical Research*, Vol. **114**, 2009
- 171 Rousseau, C-E., Rosakis, A. J.
  "Dynamic Path Selection along Branched Faults: Experiments Involving Sub-Rayleigh and Supershear Ruptures", *Journal of Geophysical Research*, Vol. 114, 2009
- 172 Griffith, W. A., Rosakis, A. J., Pollard, D.D., Ko, Chi Wan "Dynamic Rupture Experiments Elucidate tensile crack development during propagating earthquake ruptures", *Geology*, Vol. 37, No. 9, pp-795-798; (DOI: 10.1130/G20064A), 2009.
- Lu, X., Rosakis, A.J., and Lapusta, N.

  "Rupture Modes in Laboratory Earthquakes: Effect of Fault Prestress and Nucleation Conditions", *Journal of Geophysical Research*Vol. **115**, (B12302, DOI:10.1029/2009JB006833), 2010
- Biegel, R. L., Bhat, H. S., Sammis, C. G., Rosakis, A. J
   "The Effect of Asymmetric Damage on Dynamic Shear Rupture Propagation I: No Mismatch in Bulk Elasticity", *Tectonophysics*,
   2011 Special Edition on Supershear Ruptures, Vol. 493, Issue 3-4, pp. 254-262, 2010
- Bhat, H. S., Biegel, R. L., Rosakis, A. J Sammis, C. G.
  "The Effect of Asymmetric Damage on Dynamic Shear Rupture Propagation II: With Mismatch in Bulk Elasticity", *Tectonophysics*, 2011 Special Edition on Supershear Ruptures, Vol. **493**, Issue 3-4pp. 263-271, 2010
- Lu, X., Lapusta, N., Rosakis, A. J.
  "Pulse-like and crack-like dynamic shear ruptures on frictional interfaces: experimental evidence, numerical modeling, and implications", *International Journal of Fracture*, Vol. 163, 1-2, 27-39, (DOI: 10.1007/s10704-010-9479-4), 2010
- Mello, M., Bhat, H.B., Rosakis, A. J., Kanamori, H.

  "Identifying the unique ground motion signatures of supershear earthquakes: Theory and experiments", *Tectonophysics*, 2011
  Special Edition on Supershear Ruptures, Vol. **493**, Issue 3-4, pp. 297-326 (S. Das and M. Bouchon, Editors), 2010
- Eliasson, V., Mello, M., Rosakis, A. J., Dimotakis, P. E.
  "Experimental investigation of converging shocks in water with various confinement materials", *Shock Waves*, Vol. **20**,pp. 395-408, 2010
- 179 Sammis, C. G., Rosakis A. J and Bhat, H. S., "Effects of Off-Fault Damage on Earthquake Rupture Propagation: Experimental Studies", *Pure and Applied Geophysics*, Vol. **166**, pp. 1629-1648, 2010

- 180 Bhat, H.S., Sammis, C.G., Rosakis, A.J.
  "The Micromechanics of Westerley Granite at Large Compressive Loads", Pure and Applied Geophysics., 168 (12):pp. 1–18 (DOE: 10.1007/s00024-011-0271-9, 2011
- Lamberson, L., Eliasson V., Rosakis, A.J.
  "In situ Optical Investigations of Hypervelocity Impact Induced Dynamic Fracture", *Experimental Mechanics*, Special Edition, Dynamic Behavior of Materials, Conference Proceedings of the Society for Experimental Mechanics Series, Vol. 1, (DOI: 1007/978-1-4419-8228-5), 2011
- Adams, M., Lashgari, B., McKerns, M., Mihaly, J., Ortiz, M., Owhadi, H., Rosakis, A.J., Stalzer, M., Sullivan, T. J.
  "Rigorous Model-Based Uncertainty Quantification with Application to Terminal Ballistics Part II. Systems with Uncontrollable Inputs and Large Scatter", *Journal of the Mechanics and Physics of Solids*, Vol.60: pp.1002-1019, 2012
- Bhat, H. S., Rosakis, A. J., Sammis, C. G.

  "A Micromechanics Based Constitutive Model For Brittle Failure at High Strain Rates", *Journal of Applied Mechanics*, Vol. 79 (3), 031016, doe:10.1115/1.4005897, 2012
- Ngo, D, Huang, Y., Rosakis, A.J., Griffith, W.A., Pollard, D.D.
  "Off-fault tensile cracks: A link between geological fault observations, lab experiments and dynamic rupture models", *Journal of Geophysical Research*, 117, B01307, doi: 10.1029/2011JB008577, 2012
- Mihaly, J.M., Tandy, J. D., Adams, M. A. Rosakis, A. J.
  "In Situ Diagnostics for a Small-Bore Hypervelocity Impact Facility", *International Journal of Impact Engineering*, Vol. 62, pp. 13-26, December 2013
- --- Mello, M.M., Bhat, H.S., Rosakis, A.J., Kanamori, H.
  "Reproducing The Supershear Portion Of The 2002 Denali Earthquake Rupture In Laboratory", to appear in, Earth and Planetary Science Letters, 2013

- Kamga, P. H. T., Li, B., McKerns, M., Mihaly, J., Nguyen, L. H., Ortiz, M.
   H. Owhadi, A. J. Rosakis, T. Sullivan, "Optimal Uncertainty Quantification with Model Uncertainty and Legacy Data" in submission, *Journal of the Mechanics and Physics of Solids*, 2013
- --- Rubino, V., Lapusta, N., Rosakis, A. J., Leprince, S., Avouac, J-P.

  "Static laboratory earthquake measurements with the digital image correlation method", to appear in, *Journal of Experimental Mechanics*, Special Edition on DIC Methods and Applications, 2013
- --- Gabuchian, V., Rosakis, A.J., Lapusta, N., Oglesby, D.
  "Experimental Investigation of Thrust Faults", to appear in, *Journal of Geophysical Research*, 2013
- --- Mihaly, J.M., Tandy, J. D, Rosakis, A. J., Adams, M. A., Pullin, D. "Pressure Dependent, IR-emitting Clouds in Hypervelocity Impact", in preparation, 2013
- --- Mihaly, J.M., Rosakis, A. J., Tandy, J. D., Adams, M. A. "Debris Cloud Observation Using Laser Side Lighting and Hypervelocity Impact Experiments", in preparation, 2013
- --- Lamberson, L., Rosakis, A. J.
  Energy-based Ballistic Limit Model for Hypervelocity Impact of Thin Metallic Sheets", *International Journal of Impact Engineering*, in preparation, 2013