Pradeep R. Guduru
Professor of Engineering
Brown University, 184 Hope St, Providence, RI 02912
Email: Pradeep_Guduru@Brown.edu; Tel: 401 863 3362

1. Education

California Institute of Technology	Aeronautics (Minor: Materials Science) (Advisor: Prof. Ares J. Rosakis)	Ph.D. 2001
Indian Institute of Science	Aerospace Engineering	M.E., 1994
Sri Venkateswara University	Mechanical Engineering	B.Tech, 1992

2. Professional Appointments

Professor of Engineering, Brown University	07/2014 - present
Associate Professor of Engineering, Brown University	07/2008 - 06/2014
Assistant Professor of Engineering, Brown University	09/2002 -06/2008
Visiting Professor, Mechanical Engineering, Stanford University	08/2015 - 07/2016
Visiting Associate Professor, University of California, Berkeley, CA	08/2008 - 07/2009
Postdoctoral Research Associate, Brown University (with Prof. L.B.Freund)	01/2001 -08/2002

3. Honors

- Midwest Mechanics Seminar Speaker, 2022-23 (Purdue, UIUC, IIT, Iowa State Univ, Univ. of Minnesota, U. Michigan, Michigan State, U. Notre Dame, U. Chicago, U. Wisconsin).
- W.M.Keck Foundation Award: "A Ten Million Frames per Second Infrared Microscope." 2021.
- James R. Rice Medal, Society of Engineering Science, 2020.
- James R. Rice early career faculty Chair in Engineering, Brown University, 2009 – 2016.
- PECASE – Presidential Early Career Award for Scientists and Engineers, 2007.
- National Science Foundation CAREER award, 2006.
- William F. Ballhaus prize for outstanding doctoral dissertation in Aeronautics, CalTech, 2001.
- Ernest E. Sechler Memorial Award for the most significant contributions to teaching and research in Aeronautics, CalTech, 1998.
- Donald W. Douglas fellowship, Graduate Aeronautical Laboratories, CalTech, 1994-95.
- Recipient of the Institute's *Senate Commendation* for academic excellence, Indian Institute of Science, 1994.
- Ivaturi prize and Jayant Dalal scholarship for academic excellence, Sri Venkateswara University, 1991 and 1992, respectively.

4. Service

External

- Chair, ASME Applied Mechanics Division (ASME-AMD), 2021-22. Member of the Executive Committee of the ASME Applied Mechanics Division (2017 – 22).
- Member of the Board of Directors, Society of Engineering Science (SES), 2014 – 2016.
- Technical Program Chair, Mechanics of Solids, Structures and Fluids Track, IMECE-2019, Salt Lake City, November 10-13, 2019.
- Co-chair, Indo-US Discussion Meeting on Mechanics/Materials Interface, Coorg, India. February, 2018.

- Scientific Advisory Committee Member, Center for Research Excellence on Dynamically Deformed Solids. Texas A&M University. 2018 – 2023.
- Co-chair, Symposium on Mechanics of Materials across Nano to Geological Time and Length Scales. Brown University, September, 2016.
- Chair, Army Research Office Workshop on Stress Controlled Catalysis, Brown University, June 2015.
- Co-chair of "The Joint SES 50th Annual Technical Meeting and ASME AMD Summer Annual Conference," Brown University, July 28-31, 2013.
- Chair, Department of Energy Workshop on Opportunities and Challenges in Energy Storage Materials, Brown University, June 2013.
- Member of Editorial Board, Journal of the Mechanics and Physics of Solids (2013 – present), Acta Mechanica Sinica (2013 – present).
- Guest Editor, Special Issue of the Journal of the Mechanics and Physics of Solids, 2017-18;
  Associate Editor, Applied Mechanics Reviews, 2015 – 2018.
- Reviewer: Proposal reviewer for NSF, DOE, ARO, Israel Science Foundation, European Science Foundation; Manuscript reviewer for over 25 journals.

Internal

- Chair, Target of Opportunity (TOO) Faculty Recruitment Committee, School of Engineering. 2022 – 24.
- Principal Investigator, AFOSR MURI, 2021 – Microstructurally-aware Continuum Models for Energetic Materials (2018-24).
- Principal Investigator, DOE EPSCoR Implementation Program, 2012–2020. Led an interdisciplinary group of ten faculty investigators from Brown University and University of Rhode Island on "Fundamental Investigations of Mechanical and Chemical Degradation Mechanisms in Lithium Ion Battery Materials."
- Principal Investigator, ARO-MURI, 2012-2017. Led an interdisciplinary group of six faculty investigators from Brown University, California State University and EPFL on "Stress Controlled Catalysis via Engineered Nanostructures."
- Mechanical Engineering Concentration Advisor, 2010-2014, 2016–2020, 2024 - present (responsible for academic advising of all ME students in their junior and senior years, ensuring ABET compliance of student course plans; undergraduate curriculum reviews/upgrades; interfacing with the ME External Advisory Board).
- ABET Review Lead, Mechanical Engineering, 2014 and 2020. Responsible for leading all aspects of ABET review of the Mechanical Engineering program.
- Graduate Program Representative, Mechanics of Solids and Structures. 2020 – 2022 (responsible for overseeing the Solid Mechanics graduate program, including admissions, academic advising of all Sc.M. and Ph.D. students until a thesis advisor is assigned and overseeing the qualifying and preliminary examinations of all Ph.D. students).
- University Resources Committee (URC), member, 2021 - 2022. The URC works with and advises the Provost on annual University budget preparation.
- Chair, Solid Mechanics Faculty Search Committee, 2019-2020, 2012-2013; Member, Faculty Search Committee, 2011-2012, 2016-2017, 2024-25.
- Member, Dean of Engineering Search Committee, 2021-22.
- Vice-Chair, Research Advisory Board, Brown University, 2014 – 2016.

5. Research Topics

- Coupled Mechanics-Chemistry Problems in Energy Technologies (energy storage materials, heterogeneous catalysis, energetic materials)
- Dynamic Behavior of Heterogeneous Materials (dynamic deformation and failure mechanisms in heterogeneous materials, hot-spot dynamics in energetic materials, fragmentation in ductile materials)
- Scientific Instrumentation Development (high-speed infrared microscopy, high-speed visible microscopy, picosecond ultrasonics)
- Multi-metal Additive Manufacturing (development of new techniques for multi-metal composites of arbitrary 3D topologies at a spatial resolution of 200 μm or finer)
- Mechanics of Adhesion and Friction (e.g. instabilities in adhesive contact and sliding)
- Mechanics of Thin Films (e.g. kinetics of thin film growth and stress evolution, mechanical behavior of solid electrolyte interphase)

6. Patents

X. Lian, J. Rosenstein, P.R.Guduru. "Cryogenic Thermal Imager." US Patent Application # PCT/US2024/056402, 2024.

7. Refereed articles

1. C.Shi, Y.Wang, X.Liu, C. López-Pernía, J.Watt, C.Gan, A.Mijailovic, P.R.Guduru, D.Mitlin, B.W.Sheldon. Stack Pressure Effects and Viscoplastic Deformation in Argyrodite Solid-State Electrolyte. Submitted to Matter, 2025.
2. X.Lian, P.Felzenszwalb, P.R.Guduru, J.K.Rosenstein. "A burst mode cryogenic thermal imager Readout IC with spatial and temporal compression." 2025 IEEE International Symposium on Circuits and Systems, London, UK. May, 2025.
3. A.Woodside, L. Tsatosos Montoliu, P.Saghy, Z.Yu, S. Neogi, I. Kulaots, P.R.Guduru, J. Robinson. The Influence of Side-chain Identity and Tacticity on Structural, Thermal, and Mechanical Properties of Syndiotactic Polyhydroxyalkanoates. Macromolecules. 2025. https://pubs.acs.org/doi/10.1021/acs.macromol.5c00630.
4. S. Song, C. Shi, A. Pakhare, B.W.Sheldon, P.R.Guduru. "An Investigation of the Mechanical Properties of Porous Argyrodite Sulfide Electrolyte for All-Solid-State Batteries." ACS Applied Energy Materials, 8: 5636–5644, 2025.
5. X. Lian, E. Stang, K. Hu, P. R. Guduru and J. K. Rosenstein, "A 5,000,000 frame/sec Burst-mode Cryogenic Thermal Imager with On-Chip Frame Memory," in *IEEE Solid-State Circuits Letters*, doi: 10.1109/LSSC.2024.3443744. 2024.
6. J.E.Chellali, A.J.Woodside, Z. Yu, S. Neogi, I. Külaots, P.R.Guduru, J.R.Robinson. "Access to Stereoblock Polyesters via Irreversible Chain-Transfer Ring-Opening Polymerization (ICT-ROP)." Journal of the American Chemical Society 146: 11562-11569, 2024.
7. Y.Mao, N. K.Karan, R.Kumar, R.Hopson, P.R.Guduru, B.W.Sheldon, L-Q.Wang. Effect of Electrochemical Cycling on the Porosity and Pore Connectivity of Nanocomposite Silicon Electrodes Using Hyperpolarized 129 Xe and 7 Li NMR Spectroscopy. Journal of Vacuum Science and Technology, *A* 40, 043203. 2022 2022.
8. P.Malhotra, S.Niu, V.Srivastava, P.R.Guduru. A Technique for High-Speed Microscopic Imaging of Dynamic Failure Events and its Application to Shear Band Initiation in Polycarbonate. Journal of Applied Mechanics 89: 1-28. 2021.

9. P.Malhotra, R.Jiao, R.J.Clifton, P.R.Guduru. Dynamic Shearing Resistance of a polymer-bonded energetic simulant: Composite of Sucrose and Hydroxul-terminated Polybutadiene (HTPB). Journal of Applied Physics 130: 185902. 2021. (Selected for Scilight and Featured Article).
10. P.Malhotra, R.Jiao, D.L.Henann, R.J.Clifton, P.R.Guduru. Dynamic Shearing Resistance of an Energetic Material Simulant: Sucrose. Journal of the Mechanics and Physics of Solids. https://doi.org/10.1016/j.jmps.2021.104624. 2021.
11. P.Malhotra, R.Jiao, D.L.Henann, R.J.Clifton, P.R.Guduru. Dynamic Shearing Resistance of Hydroxyl-terminated polybutadiene (HTPB). Journal of Applied Physics 129: 245901. 2021. (Editor's Pick).
12. Yoon, I., Jurng, S., Abraham, D.P., Lucht, B.L., Guduru, P.R. Measurement of Mechanical and Fracture Properties of Solid Electrolyte Interphase in Lithium Ion Batteries. *Energy Storage Materials* 25: 296 – 304. 2020.
13. Johnson, B., Guduru, P.R., Peterson, A.A., Strain-induced changes to the methanation reaction on thin-film nickel catalysts. *Catalysis Science & Technology* 9: 3279-3286, 2019.
14. Yu, C., Guo, X., Yin, Z., Zhao, Z., Li, X., Robinson, J., Muzzio, M., Barbosa, C., Shen, M., Yuan, Y., Wang, J., Antolik, J., Lu, G., Su, D., Chen, O., Guduru, P.R., Seto, C.T., Sun, S., Highly Efficient AuPd Nanoparticle Catalyst for Synthesizing Polybenzoxazole with Controlled Polymerization. *Matte*r 6: 1631 - 1643*,* 2019.
15. Rezasadeh-Kalehbasti, Liu, L.W., Maris, H.J., Guduru, P.R., In *Situ* Measurement of Phase Boundary Kinetics during Initial Lithiation of Crystalline Silicon through Picosecond Ultrasonics. Experimental Mechanics 59: 681-689, 2019.
16. Ravichandran, G., Gao, H., Guduru, P.R., Preface – Ares J. Rosakis. Journal of the Mechanics and Physics of Solids 120: 1 – 4, 2018.
17. Yoon, I., Jurng, S., Abraham, D.P., Lucht, B.L., Guduru, P.R. In situ measurement of the plane strain modulus of the solid electrolyte interphase on lithium metal anodes in ionic liquid electrolytes. Nano Letters 18: 5752-5759, 2018.
18. Xia, S., Guduru, P.R., Sodano, H., Mechanics of energy materials. Experimental Mechanics 58: 533, 2018.
19. Yan, X., Gouissem, A., Guduru, P.R., Sharma, P., Elucidating the atomistic mechanisms underpinning plasticity in Li-Si nanostructures. Physical Review Materials 1: 055401, 2017.
20. Chen, C-H., Chason, E., Guduru, P.R., Measurements of the phase and stress evolution during initial lithiation of Sn electrodes. Journal of the Electrochemical Society 164: A574-A579. 2017.
21. Chen, C-H., Chason, E., Guduru, P.R. Numerical solution of moving phase boundary and diffusion- induced stress of Sn anode in the Lithium ion battery. Journal of the Electrochemical Society 164: E3661-E3670. 2017.
22. Yan, K., Kim, S.K., Khorshidi, A., Guduru, P.R., Peterson, A.A., High elastic strain directly tunes the hydrogen evolution reaction on tungsten carbide. Journal of Physical Chemistry C 121: 6177- 6183. 2017.
23. Mao, Y.G., Karan, N.K., Song, M., Hopson, R., Guduru, P.R., Wang, L.Q., Investigation of solid electrolyte interphase formed on Si nanoparticle composite electrodes using hyperpolarized Xi-129 nuclear magnetic resonance spectroscopy. Energy & Fuels 31: 5622-5628, 2017.
24. Yoon, I., Abraham, D.P., Lucht, B.L., Bower, A.F., Guduru, P.R. In Situ Measurement of Solid Electrolyte Interphase Evolution on Silicon Anodes Using Atomic Force Microscopy. Advanced Energy Materials 6: 1600099, 2016.

25. Yan,K., Maark, T.A. Khorshidi, A., Sethuraman, V.A., Peterson, A., Guduru. P.R. The influence of elastic strain on catalytic activity towards the hydrogen evolution reaction. Angewandte Chemie 55:6175-6181, 2016.
26. E.Chason and P.R.Guduru. Understanding of residual stress in polycrystalline thin films through real-time measurements and physical models. *Journal of Applied Physics* 119: 191101,2016.
27. Nguyen, C.C., Yoon, T., Seo, D.M., Guduru, P.R., Lucht, B.L. Systematic Investigation of Binders for Silicon Anodes: Interactions of Binder with Silicon Particles and Electrolytes and Effects of Binders on Solid Electrolyte Interphase Formation. ACS Applied Materials & Interfaces 8: 12211- 12220, 2016.
28. Mao, Y., Song, M., Hopson, R., Karan, N.K., Guduru, P.R., Wang, L.Q. Hyperpolarized Xe-129 nuclear magnetic resonance studies of Si nanocomposite electrode materials. Energy & Fuels 30:1470-1476, 2016.
29. Sheth, J., Karan, N.K. Abraham, D., Nguyen, C.C., Lucht, B.L. Sheldon, B.W., Guduru, P.R., In situ stress evolution in Li1+xMn2O4 thin films during electrochemical cycling in LI-ion cells. Journal of the Electrochemical Society 163: A2524-A2530, 2016.
30. Bower, A.F., Chason, E., B.W.Sheldon, Guduru, P.R. A continuum model of deformation, transport and irreversible changes in atomic structure in amorphous lithium-silicon electrodes, Acta Materialia 98: 229-241, 2015.
31. Bower, A.F., Guduru, P.R., Chason, E., Analytical solutions for composition and stress in spherical elastic-plastic lithium-ion electrode particles containing a propagating phase boundary. International Journal of Solids and Structures 69-70: 328-342, 2015.
32. Sethuraman, V.A., Vairavapandian, D., Lafouresse, M.C., Maark, T.A., Karan, N., Sun, S.H., Bertocci, U., Peterson, A.A., Stafford, G.R., Guduru, P.R. Role of Elastic Strain on Electrocatalysis of Oxygen Reduction Reaction on Pt. Journal of Physical Chemistry C. 119: 19042-19052, 2015.
33. Che, S., Guduru, P. R., Nurmikko, A.V., Maris, H.J., A scanning acoustic microscope based on picosecond ultrasonics. Ultrasonics 56: 153-159, 2015.
34. Nadimpalli, S.P.V., Sethuraman, V.A., Abraham, D.P., Bower, A.F., Guduru, P.R. Stress Evolution in Lithium-Ion Composite Electrodes during Electrochemical Cycling and Resulting Internal Pressures on the Cell Casing. Journal of the Electrochemical Society. 162: A2656-A2663, 2015.
35. Y.Mao, M.Song, R.Hopson, N.Karan, P.R.Guduru, L-Q.Wang. Hyperpolarized ^{129}Xe Nuclear Magnetic Resonance Studies of Si Nanocomposite Electrode Materials. Energy Fuels. DOI**:** 10.1021/acs.energyfuels.5b02702 (2015).
36. Y.Chen, M.Nie, B.Lucht, A.Saha, P.R.Guduru, A.Bose. "High capacity, stable silicon/carbon anodes for lithium-ion batteries prepared using emulsion-templated directed assembly." ACS Applied Materials & Interfaces 6: 4678-4683, 2014.
37. M.Song, S.P.V.Nadimpalli, V.A.Sethuraman, M.J.Chon, P.R.Guduru, L.Q.Wang. "Investigation of initial lithiation of silicon (100) using solid state Li7 NMR." Journal of the Electrochemical Society 161:A915-A919, 2014.
38. R.P.Dunn,, S.P.V.Nadimpalli, P.R.Guduru, B.Lucht. "Flame retardant co-solvent incorporation into lithium ion coin cells with thin-film Si anodes." Journal of the Electrochemical Society 161:A176- A182, 2014.
39. G.Bucci, S.P.V.Nadimpalli, V.A.Sethuraman, A.F.Bower, P.R.Guduru. "Measurement and modeling of the mechanical and electrochemical response of amorphous Si thin film electrodes during cyclic lithiation." Journal of the Mechanics and Physics of Solids 62: 276-294, 2014.

40. V.Sethuraman, A. Nguyen, M.Chon, S. Nadimpalli, H.Wang, D.P.Abraham, A.F.Bower, V.Shenoy, P.R.Guduru. “Stress Evolution in Composite Silicon Electrodes during Lithiation/Delithiation.” *Journal of the Electrochemical Society 160: A739-A746* (2013).
41. B.Lucht, R. Dunn, S.P.V.Nadimpalli, P.R. Guduru. “Flame retardant co-solvent incorporation into lithium-ion coin cells with thin-film Si anodes.” Submitted to the *Journal of the Electrochemical Society*, 2013.
42. S.P.V.Nadimpalli, V.A.Sethuraman, G. Bucci, V. Srinivasan, A.F.Bower, P.R. Guduru. “On plastic deformation and fracture in Si films during electrochemical lithiation/delithiation cycling.” *Journal of the Electrochemical Society*, DOI: 10.1149/2.098310jes, 2013.
43. M.Song, S.P.V.Nadimpalli, P.R.Guduru, V.A.Sethuraman, M.J.Chon, L.Q.Wang. “Investigation of structural changes driven by Li flux density in initial lithiation of single crystal silicon.” Submitted to The Journal of Physical Chemistry, 2013.
44. J.F.Waters, J.Kalow, H.J.Gao, P.R.Guduru. "Axisymmetric Adhesive Contact under Equi-biaxial Stretching." *Journal of Adhesion* 88:134-144 (2012).
45. S. Dalavi, P.R.Guduru, B.Lucht. “Performance enhancing electrolyte additives for lithium ion batteries with silicon anodes.” *Journal of the Electrochemical Society* 159: A642-A646 (2012).
46. A.F.Bower and P.R.Guduru. “A simple finite element model of diffusion, finite deformation, plasticity and fracture in lithium ion insertion electrode materials.” *Modelling and Simulation in Materials Science and Engineering* 20: DOI: 10.1088/0965-0393/20/4/045004 (2012).
47. M.Stournara, P.R.Guduru, V.B.Shenoy. “Elastic behavior of crystalline Li-Sn phases with increasing Li concentration.” *Journal of Power Sources* 208: 165-169 (2012).
48. S. Nadimpalli, V. Sethuraman, S. Dalavi, B. Lucht, M.Chon, V. Shenoy, P.R.Guduru. “Quantifying capacity loss due to solid-electrolyte-interphase layer formation on silicon negative electrodes in lithium-ion batteries.” *Journal of Power Sources* 215: 145-151 (2012).
49. V.A. Sethuraman, N. Van Winkle, D.P. Abraham, A.F. Bower, P.R. Guduru. “Real-Time Stress Measurements in Lithium-ion Battery Negative-electrodes.” *Journal of Power Sources* 206: 334-342 (2012).
50. M.J.Chon, V.A.Sethuraman, A. McCormick, V. Srinivasan, P.R.Guduru. "Real-time Measurement of Stress and Damage Evolution During Initial Lithiation of Crystalline Silicon." *Physical Review Letters* 467: 2209-2223 (2011).
51. A.F. Bower, P.R. Guduru, V.A. Sethuraman, "A Finite Strain Model of Stress, Diffusion, Plastic Flow and Electrochemical Reactions in a Lithium-ion Half-cell", *Journal of the Mechanics and Physics of Solids* 59: 804-828 (2011).
52. J.F.Waters and P.R. Guduru. "A Mechanism for Enhanced Static Sliding Resistance due to Surface Waviness." *Proceedingds of the Royal Society* A. 467: 2209-2223 (2011).
53. J.F.Waters, H.J. Gao, P.R. Guduru, "On Adhesion Enhancement due to Concave Surface Geometries." *The Journal of Adhesion* 87: 194-213 (2011).
54. V.A. Sethuraman, M.J. Chon, M. Shimshak, V. Srinivasan, P.R. Guduru, "In Situ Measurements of Stress Evolution in Silicon Thin Films during Electrochemical Lithiation and Delithiation", *J. Power Sources* 195, 5062-5066, 2010.
55. V.A. Sethuraman, V. Srinivasan, A.F. Bower, P.R. Guduru, In situ Measurements of Stresspotential Coupling in Lithiated Silicon." *Journal of the Electrochemical Society* 157: A1253 (2010).
56. V.A. Sethuraman, M. Shimshak, M.J. Chon, N. Van Winkle, P.R. Guduru, "In Situ Measurement of Biaxial Modulus of Si Anode for Li-ion Batteries," *Electrochemistry Communications*, 12:1614- 1617(2010).

57. J.F. Waters, P.R. Guduru. Mode-mixity-dependent adhesive contact of a sphere on a plane surface.
Proceedings of the Royal Society of London, A., 466: 1303-1325 (2010).
58. Middleton KM, Goldstein BD, Guduru PR, et al. Variation in within-bone stiffness measured by nanoindentation in mice bred for high levels of voluntary wheel running *Journal of Anatomy*, 216 (1): 121-131, 2010.
59. J.F. Waters, S. Lee, P.R. Guduru. Mechanics of axisymmetric wavy surface adhesion: JKR-DMT transition solution. *International Journal of Solids and Structures* 46: 1033-1042, 2009.
60. H. Yao, S. Chen, P.R. Guduru, H. Gao. Orientation-dependent adhesion strength of a rigid cylinder in non-slipping contact with a transversely isotropic half-space. *International Journal of Solids and Structures* 46: 1167-1175, 2009.
61. H. Yao, P.R. Guduru, H.J. Gao. Maximum strength for intermolecular adhesion of nanospheres at an optimal size. *Journal of the Royal Society of Interface* 5: 1363-1370, 2008.
62. J.M. Johnson, P.R. Guduru, K. Myers, et al. Measurement of the stress relaxation response to tension in the pregnant rat cervix, *Reproductive Sciences*, 15 (2) p. 263A-263A, 2008.
63. V. Gill, P.R. Guduru and B.W. Sheldon. Electric Field Induced Surface Diffusion and Micro/Nano- scale Island Growth. *International Journal of Solids and Structures*. 45: 943-958. 2008.
64. H. Yao, G. Della Rocca, P.R. Guduru and H. Gao. Adhesion and Sliding Response of a Biologically Inspired Fibrillar Surface: Experimental Observations. *Journal of the Royal Society Interface*. 5: 723-733, 2008.
65. Z. Xia, P.R. Guduru and W. Curtin. Enhancing Mechanical Properties of Multi-Wall Carbon Nanotubes via sp^3 Inter-wall Bridging. *Physical Review Letters* 98: Art. No. 245501, 2007.
66. P.R. Guduru. Detachment of a Rigid Solid from a Wavy Elastic Surface - Theory. *Journal of the Mechanics and Physics of Solids* 55: 445-472, 2007.
67. P.R. Guduru and C.Bull. Detachment of a Rigid Solid from a Wavy Elastic Surface - Experiments.
Journal of the Mechanics and Physics of Solids 55: 473-488, 2007.
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71. P.R. Guduru, M. S. Bharathi and L.B. Freund. The Influence of a Surface Coating on the High Rate Fragmentation of a Ductile Material. *International Journal of Fracture*, 137 (1-4): 89-108, 2006.
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74. P.R. Guduru, E. Chason and L.B. Freund, "Mechanics of compressive stress evolution during thin film growth," *Journal of the Mechanics and Physics of Solids* 51: 2127-2148. 2003.

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81. A.Pandolfi, P.R. Guduru, M. Ortiz and A.J. Rosakis, "Three Dimensional Cohesive-Element Analysis and Experiments of Dynamic Fracture in C300 Steel", *International Journal of Solids and Structures*, 37: 3733-3760, 2000.
82. A.Venkert, P.R. Guduru and G. Ravichandran, "An Investigation of Dynamic Failure in 2.3Ni-1.3Cr- 0.17C Steel," *Materials Transactions A,* 31: 1147-1154, 2000.
83. 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.
84. 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.

8. Invited Departmental Seminars/Lectures

1. Invited Speaker. JMS Symposium: New challenges in the Mechanics and Physics of Solids. European Solid Mechanics Conference, Lyon, France. July 7-11, 2025.
2. Seminar Speaker, Lawrence Livermore National Laboratory, October 30, 2024.
3. Seminar Speaker, Engineering Mechanics Unit, Jawaharlal Nehru Center for Advanced Scientific Research. June, 2024.
4. Seminar Speaker, Indian Institute of Technology, Hyderabad, June 2024.
5. Invited speaker, Drucker Medal Symposium, IMECE 2024, Portland, OR. November 2024.
6. Invited speaker, Contemporary Mechanics of Materials Symposium: Celebrating Professor Kaushik Bhattacharya's 60th Birthday, November, 2024.
7. Midwest Mechanics Seminar Speaker, February 6-10, 2023 (Purdue, UIUC, IIT, Iowa State Univ, Univ. of Minnesota). April 10-14, 2023 (U. Michigan, Michigan State, U. Notre Dame, U. Chicago, U. Wisconsin).
8. Seminar Speaker, Department of Mechanical Engineering, Massachusetts Institute of Technology, December 14, 2022 (scheduled).
9. Plenary Speaker, Workshop on Electro-mechanical Coupling in Energy Storage Systems. Ecole Polytechnique, France, October, 2022.
10. Seminar speaker, Department of Mechanical Engineering, University of Rhode Island, February 18, 2022.

11. Distinguished Seminar Speaker, Department of Mechanical Engineering, University of Houston. February 3, 2022.
12. Seminar speaker, Naval Undersea Warfare Center, Newport, RI. January 18, 2022.
13. J.R.Rice medal lecture, Society of Engineering Science Annual Technical Meeting, October 1, 2020.
14. Seminar speaker, Department of Mechanical and Industrial Engineering, Northeastern University, January 24, 2020.
15. Seminar speaker, Department of Aerospace Engineering and Engineering Mechanics, University of Texas, Austin, December 5, 2019.
16. Seminar speaker, Graduate Aerospace Laboratories, California Institute of Technology, October 18, 2019.
17. Seminar Speaker, Department of Chemistry, University of Rhode Island, September 23, 2019.
18. Invited Talk, Drucker Medal Symposium, IMECE (International Mechanical Engineering Congress & Exposition) – 2019, Salt Lake City, November 2019.
19. Invited speaker, Symposium in honor of Prof. G.Ravichandran on the occasion of his 60th birthday, California Institute of Technology, June, 2019.
20. Seminar Speaker, Department of Materials Science and Engineering, Texas A&M University, College Station, March 19, 2018.
21. Invited Speaker, Indo-US Discussion Meeting on Mechanics/Materials Interface, Coorg, India. February 17-22, 2018.
22. Invited keynote lecture. The 233rd electrochemical society (ECS) meeting Seattle, Wa. May 13-17, 2018.
23. Invited Speaker, Battery 500 Meeting, Berkeley, CA, 2017.
24. Keynote Speaker, International Society of Electrochemistry 68th International Conference, Providence, RI, 2017.
25. Seminar speaker, Department of Mechanical Engineering, Northwestern University, December 2016.
26. Seminar speaker, Department of Aerospace Engineering, Iowa State University, November 2016.
27. Seminar speaker, Department of Mechanical Engineering, Rutgers University, November 2016.
28. Seminar speaker, Division of Chemical Sciences and Engineering, Argonne National Laboratory, March 2016.
29. Invited talk, Symposium on phase and chemical transformations and thermomechanical phenomena. International Congress of Theoretical and Applied Mechanics, August, 2016.
30. Invited talk, Drucker Medal Symposium, International Mechanical Engineering Congress & Exposition, Phoenix, AZ, November 2016.
31. Seminar speaker, Department of Mechanical Engineering, Stanford University, October 2015.
32. Seminar speaker, Department of Mechanical Engineering, Hong Kong Polytechnic University, July 2015.
33. Invited speaker, Gordon Research Conference on Nano-Mechanical Interfaces, Hong Kong University of Science and Technology, July 2015.
34. Invited speaker, Prager Medal Symposium, Society of Engineering Science, Texas A&M University, October 2015.
35. Invited speaker, ARO Workshop on Stress Controlled Catalysis, Brown University, June 2015.
36. Invited speaker at International Conference on Experimental Mechanics, University of Cambridge, Cambridge, UK, 2014.
37. Invited speaker at Society of Experimental Mechanics Annual Conference, Greenville, SC,

2014.

38. Invited speaker at New.Mech. 2013 (New England Workshop on the Mechanics of Materials and Structures), *Northeastern University*, October 12, 2013.
39. Invited speaker at the Symposium on "Performance of Materials and Structures under Extreme Loading Conditions", *University of Rhode Island*, October 12-13, 2013.
40. Invited seminar speaker, Department of Aerospace Engineering and Engineering Mechanics, *University of Texas, Austin*, April 2013.
41. Invited speaker, *International Battery Association, Barcelona*, March 2013.
42. Invited seminar speaker, *Intel Corporation*, Chandler, AZ, January 2013.
43. Invited seminar Speaker, Department of Mechanical and Aerospace Engineering, *University of Florida*, Gainesville, FL. November 2012.
44. Invited Speaker, International Symposium on Current Problems in Solid Mechanics, Symi, Greece, June 2012.
45. Invited seminar speaker, *A123 Corporation*. Boston, MA. May, 2012.
46. Invited seminar Speaker, Institute of Mechanical Engineering, *École Polytechnique Fédérale de Lausanne (EPFL)*, Switzerland, May, 2012.
47. Invited seminar Speaker, "Mechanics of energy storage materials." Department of Aerospace Engineering, *University of Illinois, Urbana-Champaign*, Urbana, IL. April 2012.
48. Invited seminar Speaker, Department of Mechanical Engineering, *University of Houston*, April, 2012.
49. Invited seminar Speaker, *Institute for High Performance Computing (IHPC)*, Singapore, February, 2012.
50. Invited seminar speaker, Department of Mechanical Engineering, *University of Pennsylvania*, January 2012.
51. Invited seminar speaker, Department of Physics, *California State University*, Northridge, October, 2011.
52. Invited talk, Eringen Medal Symposium in Honor of Prof. Ares Rosakis. *Northwestern University*, October, 2011.
53. Invited Speaker on Energy Storage Materials. AFOSR *Mechanics of Multifunctional Materials and Microsystems Program*, Washington DC, August, 2011.
54. Invited seminar speaker, *Boston Power Corporation*, Westborough, MA. July, 2011.
55. Invited seminar speaker, Department of Chemistry, *University of Rhode Island*, April 2011.
56. P.R. Guduru, "Why Mechanics Phenomena are Essential in Designing Battery Materials." MRSEC Directors' Meeting, San Juan, Puerto Rico, March, 2011.
57. Invited seminar speaker, Department of Mechanical Engineering, *City University of New York*, February, 2011.
58. Invited seminar speaker, *Air Force Research Laboratories*, Wright Patterson Air Force Base, February, 2011.
59. Invited seminar. *NASA Glenn Space Center*, December 2010.
60. Invited seminar speaker, Division of Engineering and Applied Sciences, *Harvard University*, December 2010.
61. Invited seminar speaker, Department of Mechanical Engineering, *Indian Institute of Science*, Bangalore, August, 2010.
62. Invited seminar speaker. *General Motors India Science Lab*, Bangalore, India, August, 2010.
63. Invited seminar speaker, Department of Physics, *Indian Institute of Technology*, Madras, India. August, 2010.
64. Invited panel member and speaker, Mechanics of Nano and Bio Mechanics, NSF Grantee Conference, Honolulu, HI, July 2009.

65. Invited speaker at the Symposium to celebrate 80th Anniversary of Graduate Aerospace Laboratory at California Institute of Technology (GALCIT 80), *California Institute of Technology*, September, 2008.
66. Invited seminar speaker, Department of Mechanical Engineering, *University of Pennsylvania*, April, 2008.
67. Invited seminar speaker, Department of Mechanical Engineering, *Stanford University*, May 2008.
68. Invited seminar speaker, Department of Engineering Physics, *University of Wisconsin*, Madison, February 2008.
69. Invited speaker, *Thin Air Philosophical Society* Meeting: Challenges in Mechanics of Materials. Boulder, CO. August 2007.
70. Invited seminar speaker, Department of Theoretical and Applied Mechanics, *Cornell University*. May 2007.
71. Invited seminar speaker, Department of Mechanical Engineering, *Northeastern University*, December 2006.
72. Invited speaker, Princeton Center for Complex Materials: Workshop on Recent Progress in Nanoscale Contact Mechanics. *Princeton University*. October 2006.
73. Invited speaker, US-Korea Joint Workshop on Nano-Mechanics. *University of California, Los Angeles*. August 2006.
74. Invited speaker, Alan Needleman-Viggo Tvergaard Symposium. *Brown University*, August, 2006.
75. Invited seminar speaker, Department of Mechanical Engineering, *Massachusetts Institute of Technology*, Cambridge, MA. April 2006.
76. Invited speaker, Mindlin Symposium. US *National Congress of Theoretical and Applied Mechanics*. Boulder, CO. June 2006.
77. Invited speaker, Symposium on Biologically Inspired Structures. *US National Congress of Theoretical and Applied Mechanics*. Boulder, CO. June 2006.
78. Invited speaker, Symposium on Bio and Nano Mechanics. Society for Engineering Science Annual Meeting, *Penn State University*. August, 2006.
79. Invited speaker, 15th International Invitational Symposium on *Unification Of Analytical, Computational, And Experimental Solution Methodologies In MEMS And Nanotechnology.* Springfield, MA. November, 2004.
80. Invited seminar speaker, Department of Mechanical Engineering, *Tufts University*. November 2004.
81. Invited speaker, GALCIT 75th Anniversary special symposium on current trends in solid mechanics,
California Institute of Technology. November, 2003.
82. Invited seminar speaker, Department of Mechanical Engineering, *University of Rhode Island*. March, 2003.
83. Invited speaker, Ben Freund 60th Birthday symposium on Mechanics of Materials, *California Institute of Technology*, January 2003.
84. Invited seminar speaker, Department of Aeronautics and Astronautics, *Massachusetts Institute of Technology*, Cambridge, MA. April, 2002.
85. Invited seminar speaker, Department of Aeronautics and Astronautics, *University of Illinois at Urbana Champaign*, Urbana, IL. April, 2002.
86. Invited seminar speaker, Division of Engineering, *Brown University*, Providence, RI. April, 2002.
87. Invited seminar speaker, Department of Mechanical Engineering and Engineering Mechanics,

Michigan Technological University, Houghton, MI. April, 2002.

88. Invited seminar speaker, Department of Mechanical, Aerospace and Nuclear Engineering, *Rensselaer Polytechnic Institute*, Troy, NY. March, 2002.
89. Invited seminar speaker, Department of Mechanical Engineering, *University of California, Riverside*, CA. March, 2002.
90. Invited seminar speaker, Department of Mechanical Engineering, *University of South Carolina*, Columbia, SC. February, 2002.
91. Invited seminar speaker, Department of Mechanical Engineering, *Duke University*, Durham, NC. February, 2002.
92. Invited seminar speaker, Department of Theoretical and Applied Mechanics, *Cornell University*, Ithaca, NY. October, 2001.
93. Invited seminar speaker, Department of Mechanical Engineering, *University of Rochester*, Rochester, NY. October, 2001.
94. Invited seminar speaker, Division of Engineering, *Brown University*, Providence, RI. September, 2001.
95. Invited seminar speaker, Department of Mechanical Engineering, *Indian Institute of Science*, Bangalore, India. August, 2001.

9. Abstracts and contributed talks

1. E.Stang, X.Lian, J.Rosenstein, P.R.Guduru. A Custom High Speed Thermal Imager for Extreme Loading Events. Mach Conference, Annapolis, MD. April, 2025.
2. Neogi S., Pilvelait T., Barbosa M.C., Rodriguez M., Henann D., Guduru P., (June 2025). *Simulation of Pore Collapse and Constitutive Modeling of an Energetic Material Simulant: Sucrose.* Society of Experimental Mechanics Annual Meeting, Milwaukee, WI.
3. Neogi S., Pilvelait T., Barbosa M.C., Smith L., Lukic B., Rodriguez M., Henann D., Chapman D.J., Eakins D., Bober D., Guduru P., (June 2025). *Shock induced pore collapse in energetic material simulant: Sucrose*. 24th International Conference on the Science of Compression in Condensed Matter. Washington D.C.
4. Pilvelait, T., Neogi, S., Eakins, D., Chapman, D., Lukic, B., Henann, D., Guduru, P. (April, 2025). Characterizing dynamic failure around shock-loaded voids via high-speed x-ray imaging and digital image correlation. Mach Conference 2025. Annapolis, MD.
5. Pilvelait, T., Zuanetti., B., Zecevic., M., Cawkwell., M., Bolme, C., Ramos, K., Guduru, P. (June, 2025). The dynamic mechanical response of an energetic material simulant: acetaminophen. 24th International Conference on the Science of Compression in Condensed Matter. Washington D.C.
6. Mohit Gupta, Hi‘ileinani Dikilato, Eric Stang and Pradeep R. Guduru, (2025, April 9-11). Structural materials with engineered meso-scale architectures: A case study on fracture of lamellar materials. Mach 2025, Annapolis, Maryland, United States.
7. Mohit Gupta, Hi‘ileinani Dikilato, Haneesh Kesari and Pradeep R. Guduru, (2025, June 2-5). Experimental and numerical modeling of fracture in lamellar materials. 2025 SEM Annual, Milwaukee, Wisconsin, United States.
8. Pilvelait, T., Neogi, S., Eakins, D., Chapman, D., Lukic, B., Henann, D., Guduru, P. (4/2024). High-Speed Characterization of the Dynamic Strain Field around a Collapsing Pore in PMMA via x-ray Digital Image Correlation. Brown University National Lab Day, Providence, RI.
9. Pilvelait, T., Neogi, Henann, D., & Guduru, P. (June, 2024). Behavior of and Hot Spot Mechanisms in Energetic Materials (and their simulants) Under Extreme Loading Conditions. Society of Experimental Mechanics Annual Meeting, Vancouver, WA.

10. Neogi S., Pilvelait T., Chapman D., Bober D., Eakins D., Guduru P., (June 2024). *A Study of Dynamic Shear Localization and Vortical Flow during Shock Wave Induced Hole Collapse Using X-Ray Imaging and Digital Image Correlation*. Society of Experimental Mechanics Annual Meeting, Vancouver, WA.
11. Gupta, M., Dikilato, H., Srivastava, V., Kesari, H., Guduru, P.R. Materials with engineered mesoscale heterogeneities: a case study on lamellar solids. Society of Experimental Mechanics Annual conference, Vancouver, WA, 2024.
12. Neogi S., Pilvelait T., Malhotra P., Henann D., Guduru P., (April, 2024). *Shear Strength of a Polymer Binder (HTPB) for Energetic Materials*. Brown University National Lab Day, Providence, RI.
13. Ford, Elena, Black, Scott, Gupta, Mohit, Guduru, Pradeep, Karan, Naba, "Development of Epoxy-Resin Based Solid Electrolytes for Multifunctional Structural Batteries", *ECS Meeting Abstracts [21512043]*, vol. MA2024-01, no. 2, pp 351-351.
14. Pakhare, Akshay, La, Sungwon, Karan, Naba, Guduru, Pradeep, "Operando Stress Evolution in Hard Carbon Anodes – Insight into the Mechanical Degradation Induced Failure Mode in Rechargeable Sodium Ion Batteries", *ECS Meeting Abstracts [21512043]*, vol. MA2024-01, no. 38, pp 2294-2294.
15. Neogi S., Pilvelait T., Malhotra P., Henann D., Guduru P., (October 2023). *Investigating the Dynamic Shearing Resistance and Thermo-Viscoelastic Behavior of Hydroxyl-terminated polybutadiene (HTPB).* Society of Engineering Science Annual Meeting, Minneapolis, MN.
16. Pilvelait, T., Neogi, S., Eakins, D., Chapman, D., Lukic, B., Henann, D., Guduru, P. (October, 2023). High-Speed Characterization of the Dynamic Strain Field around a Collapsing Pore in PMMA via x-ray Digital Image Correlation. Society of Engineering Science Annual Meeting, Minneapolis, MN.
17. P.Malhotra, P.R.Guduru. "High-Speed Microscopic Imaging of Initiation and Propagation of Adiabatic Shear Bands", Society of Engineering Science, St.Louis, MO, October 2019.
18. P.Malhotra, P.R.Guduru. "High-Speed Microscopic Imaging of Initiation and Propagation of Adiabatic Shear Bands", Society of Experimental Mechanics, Reno, NV, June 2019.
19. Rezasadeh-Kalehbasti, Liu, L.W., Maris, H.J., Guduru, P.R., "Real-Time Measurement of Phase Transformation in Electrode Materials by Integrating In Situ Picosecond Ultrasonics and Atomic Force Microscopy", Fall Meeting of Materials Research Society, Boston, MA, 11/26/2018.
20. Rezasadeh-Kalehbasti, Liu, L.W., Maris, H.J., Guduru, P.R., "Real-Time Measurement of Phase Transformation in Electrode Materials by Integrating In Situ Picosecond Ultrasonics and Atomic Force Microscopy", The American Society of Mechanical Engineers International Mechanical Engineering Conference, Pittsburgh, PA, 11/12/2018.
21. Rezasadeh-Kalehbasti, Liu, L.W., Maris, H.J., Guduru, P.R., "Picosecond Ultrasonics for Real-time Measurement of Phase boundary Propagation", The 9th Annual New England Workshop on the Mechanics of Materials and Structures, Providence, RI, 09/29/2018.
22. Rezasadeh-Kalehbasti, Liu, L.W., Maris, H.J., Guduru, P.R., "Real-Time Measurement of Phase Boundary Propagation Using Picosecond Ultrasonics", Society of Experimental Mechanics Annual Conference and Exposition, Greenville, SC, 06/05/2018.
23. Yoon, I., Jurng, S., Abraham, D.P., Lucht, B.L., Guduru, P.R. "In Situ Measurement of Mechanical Properties of Solid Electrolyte Interphase (SEI) Layers", The 233rd electrochemical society (ECS) meeting, Seattle, Wa, 05/15/2018.
24. Yoon, I., Jurng, S., Abraham, D.P., Lucht, B.L., Guduru, P.R. "Measurement of Electrolyte Dependent Elastic Modulus of Solid Electrolyte Interphase (SEI) Formed on Li Thin Film

Electrodes", 2018 Society for Experimental Mechanics (SEM) Annual Conference and Exposition on Experimental and Applied Mechanics, Greenville SC, 06/04/2018.

25. Yoon, I., Jurng, S., Abraham, D.P., Lucht, B.L., Guduru, P.R. "Elastic buckling-based measurements of the plane strain modulus of ultra-thin, rough, possibly porous films", New England Mechanics Conference, Providence RI, 09/29/2018.
26. Yoon, I., Jurng, S., Abraham, D.P., Lucht, B.L., Guduru, P.R. "Measurement of mechanical properties and assessment of mechanical degradation of solid electrolyte interphase (SEI) formed with carbonate-based electrolytes", International mechanical engineering congress & exposition (IMECE), Pittsburgh PA, 11/12/2018.
27. Yoon, I., Jurng, S., Abraham, D.P., Lucht, B.L., Guduru, P.R. "In situ Measurement of Plane Strain Modulus of the Solid Electrolyte Interphase (SEI) on Lithium Metal Anodes in Ionic Liquid Electrolytes", International mechanical engineering congress & exposition (IMECE), Pittsburgh PA, 11/12/2018.
28. Yoon, I., Jurng, S., Abraham, D.P., Lucht, B.L., Guduru, P.R. "Measurement of Mechanical Properties and Assessment of Mechanical Degradation of Solid Electrolyte Interphase (SEI) Formed with Carbonate-Based Electrolytes", Materials Research Society (MRS) fall meeting Boston MA, 11/26/2018.
29. Yoon, I., Jurng, S., Abraham, D.P., Lucht, B.L., Guduru, P.R. "In situ Measurement of Plane Strain Modulus of the Solid Electrolyte Interphase (SEI) on Lithium Metal Anodes in Ionic Liquid Electrolytes", Materials Research Society (MRS) fall meeting Boston MA, 11/29/2018.
30. P.Malhotra, T.Jiao, R.J.Clifton, P.R.Guduru. "Dynamic Shearing Resistance of Constituents of an Active Material Simulant", Society of Experimental Mechanics, Greenville, SC, 06/04/2018.
31. P.Malhotra, P.R.Guduru. "High-Speed Microscopic Imaging of Initiation and Propagation of Adiabatic Shear Bands", Society of Experimental Mechanics, Greenville, SC, 06/05/2018.
32. P.Malhotra, P.R.Guduru. "High-Speed Microscopic Imaging of Initiation and Propagation of Adiabatic Shear Bands", New Mech Conference, Brown University, Providence, 09/29/2018.
33. "High-Speed Microscopic Imaging of Initiation and Propagation of Adiabatic Shear Bands", Mach Conference, Annapolis, MD, 04/05/2018.
34. I.Yoon, S. Jurng, D. Abraham, B. Lucht, P.R.Guduru. Measurement of Electrolyte Dependent Elastic Modulus of Solid Electrolyte Interphase (SEI) Formed on Li Thin Film Electrodes. Society for Experimental Mechanics (SEM) Annual Conference and Exposition on Experimental and Applied Mechanics, Greenville SC. Jun. 4-7, 2018.
35. I.Yoon, S. Jurng, D. Abraham, B. Lucht, P.R.Guduru. Elastic buckling-based measurements of the plane strain modulus of ultra-thin, rough, possibly porous films. NewMech Providence RI. September 29, 2018.
36. I.Yoon and P.R.Guduru. Measurement of mechanical properties and assessment of mechanical degradation of solid electrolyte interphase (SEI) formed with carbonate-based electrolytes. International mechanical engineering congress & exposition (IMECE), Pittsburgh PA. November 9-15, 2018.
37. I.Yoon and P.R.Guduru. In situ Measurement of Plane Strain Modulus of the Solid Electrolyte Interphase (SEI) on Lithium Metal Anodes in Ionic Liquid Electrolytes.” International mechanical engineering congress & exposition (IMECE), Pittsburgh PA. November 9-15, 2018.
38. I.Yoon and P.R.Guduru. Measurement of Mechanical Properties and Assessment of Mechanical Degradation of Solid Electrolyte Interphase (SEI) Formed with Carbonate-Based Electrolytes. Materials Research Society (MRS) fall meeting Boston MA. November 25-30, 2018.

39. I.Yoon and P.R.Guduru. *In situ* Measurement of Plane Strain Modulus of the Solid Electrolyte Interphase (SEI) on Lithium Metal Anodes in Ionic Liquid Electrolytes. Materials Research Society (MRS) fall meeting Boston MA. November 25-30, 2018.
40. S. Rezazadeh-Kalehbasti, L.W. Liu, H. Maris, P. Guduru, "Real-Time Measurement of Phase Transformation in Electrode Materials by Integrating In Situ Picosecond Ultrasonics and Atomic Force Microscopy". Fall Meeting of Materials Research Society, Boston, MA, 2018.
41. S. Rezazadeh-Kalehbasti, L.W. Liu, H. Maris, P. Guduru, "Real-Time Measurement of Phase Transformation in Electrode Materials by Integrating In Situ Picosecond Ultrasonics and Atomic Force Microscopy", The American Society of Mechanical Engineers International Mechanical Engineering Conference, Pittsburgh, PA, 2018.
42. S. Rezazadeh-Kalehbasti, L.W. Liu, H. Maris, P. Guduru, "Picosecond Ultrasonics for Real-time Measurement of Phase boundary Propagation", The 9th Annual New England Workshop on the Mechanics of Materials and Structures, Providence, RI, 2018.
43. S. Rezazadeh-Kalehbasti, L.W. Liu, H. Maris, P. Guduru, "Real-Time Measurement of Phase Boundary Propagation Using Picosecond Ultrasonics", Society of Experimental Mechanics Annual Conference and Exposition, Greenville, SC, 2018.
44. Malhotra, P., Jiao, T., Clifton, R.J., Guduru, P.R.. *Dynamic Shearing Resistance of Constituents of an Active Material Simulant*. Society of Experimental Mechanics, Greenville, SC. June, 2018.
45. Malhotra, P., Guduru, P.R.. *High-Speed Microscopic Imaging of Initiation and Propagation of Adiabatic Shear Bands*. Society of Experimental Mechanics, Greenville, SC. June 2018.
46. Malhotra, P., Guduru, P.R. *High-Speed Microscopic Imaging of Initiation and Propagation of Adiabatic Shear Bands*. New Mech, Brown University, Providence. September 2018.
47. Malhotra, P., Guduru, P.R. *High-Speed Microscopic Imaging of Initiation and Propagation of Adiabatic Shear Bands*. Poster presentation at New Mech, Brown University, Providence. September 2018.
48. I.Yoon, P.R.Guduru, B.Lucht. In situ measurements of mechanical properties of cathode films during electrochemical cycling. MRS Fall Meeting, Novermber, 2017.
49. I.Yoon, P.R.Guduru, B.Lucht. In situ measurements of mechanical properties of cathode films during electrochemical cycling. Society of Engineering Science, October, 2017.
50. S.Rezazadeh, H.Maris, P.R.Guduru. In Situ Measurement of Phase Boundary Kinetics in Battery Electrodes Using Picosecond Ultrasonics Method. MRS Fall Meeting, 2017.
51. S.Rezazadeh, H.Maris, P.R.Guduru. In Situ Measurement of Phase Boundary Kinetics in Battery Electrodes Using Picosecond Ultrasonics Method. Society of Engineering Science, 2017.
52. P.R.Guduru, S.Rezazadeh, H.Maris. Real-Time Monitoring of Phase Boundary Propagation in Electrode Materials through Picosecond Ultrasonics. International Society of Electrochemistry 68th International Conference, 2017.
53. P.Malhotra, T.Jiao, R.J.Clifton, P.R.Guduru. Dynamic Shearing Resistance of Constituents of an Active Material Simulant. American Physical Society (APS) 2017, July 2017.
54. P.Malhotra, T.Jiao, R.J.Clifton, P.R.Guduru. Dynamic Shearing Resistance of Constituents of an Active Material Simulant. Society of Engineering Science 54th Annual Technical Meeting, Northeastern University, October 2017.
55. P.Malhotra, T.Jiao, R.J.Clifton, P.R.Guduru. Dynamic Shearing Resistance of Constituents of an Active Material Simulant. NewMech 2017, Massacusetts Institute of Technology, October 2017.
56. P.R.Guduru, "Measurement of fracture energy of lithiated silicon." International Conference

on Experimental Mechanics, Rhodes, July 2016.

57. C-H.Chen, P.R.Guduru, E. Chason, "Mechanics and Kinetics of Phases Transormation in Tin Electrodes during Lithiation*", Materials Research Society Winter Meeting & Exhibition, Boston, MA*, 2016.
58. O.Skartsis and P.R.Guduru. "A MEMS measurement device for testing electrode materials." International Conference on Experimental Mechanics, Rhodes, July 2016.
59. Insun Yoon and Pradeep R. Guduru. In-situ Measurement of Solid Electrolyte Interphase Evolution. Society of Engineering Science, 2016.
60. Chun Hao Chen, Eric Chason and Pradeep Guduru. Experimental and Modeling Characterization of Mechanics and Phase Kinetics of Sn Anode in Lithium-ion Battery. TMS Annual Meeting, 2016.
61. C-H.Chen, P.R.Guduru, E. Chason, "Mechanics and Kinetics of Phases Transormation in Tin Electrodes during Lithiation*", Materials Research Society Spring Meeting & Exhibition, San Francisco*, CA, 2015.
62. C-H.Chen, P.R.Guduru, E. Chason, "Mechanics and Kinetics of Phases Transormation in Tin Electrodes during Lithiation*", Materials Research Society Spring Meeting & Exhibition, Boston, MA*, 2015.
63. M.J.Chon, A.F.Bower, P.R.Guduru. Experimental Measurement of Stress-Potential Coupling in Lithiated Silicon. Society of Engineering Science, College Station, TX, 2015.
64. S.P.V.Nadimpalli, V.A.Sethuraman, P.R.Guduru, D.P.Abraham. Stress Evolution in lithium-ion composite electrodes during Electrochemical Cycling and Resulting internal pressures on the cell casing. Society of Engineering Science, College Station, TX, 2015.
65. Chun Hao Chen, Srivatsan Hulikal, Eric Chason, Allan Bower, and Pradeep Guduru. Experimental and Modeling Characterization of Mechanics and Phase Kinetics of Sn Anode in Lithium-ion Battery. Society of Engineering Science, College Station, TX, 2015.
66. Insun Yoon, Allan F. Bower, Pradeep R. Guduru. In-situ Measurement of Solid Electrolyte Interphase Evolution. Society of Engineering Science, College Station, TX, 2015.
67. Michael J. Chon, Allan F. Bower, Pradeep R. Guduru. Measurement of Fracture Energy of Lithiated Silicon as a Function of Lithium Concentration. Society of Engineering Science, College Station, TX, 2015.
68. Jay Sheth, Naba K. Karan,Brian Sheldon and Pradeep. R. Guduru. A Study of Stress and Damage Evolution during Electrochemical Cycling of Lithium Ion Battery Cathodes. Society of Engineering Science, College Station, TX, 2015.
69. MJ Chon, VA Sethuraman, N Jadhav, PR Guduru, "Experimental Measurements of the Fracture Energy of LixSi as a Function of Lithium Concentration*", Materials Research Society Spring Meeting & Exhibition, San Francisco*, CA, 2014.
70. MJ Chon, VA Sethuraman, N Karan, PR Guduru, "On the role of Mechanics in the Design and Performance of Energy Storage Materials", *Society for Experimental Mechanics Annual Conference and Exhibition*, Greenville, SC, 2014.
71. MJ Chon, PR Guduru, "Mechanical Properties and Behavior of Silicon as Lithium-ion Battery Material", *New England Workshop on the Mechanics of Materials*, Amherst, MA, 2014.
72. S. Nadimpalli, V. Sethuraman, P.R.Guduru. "On plastic deformation and fracture of lithiated silicon." 49th SES Technical Meeting, Atlanta, GA, 2012.
73. V. Sethuraman, S. Nadimpalli, P.R.Guduru. "Stress Evolution in Silicon Particle Electrodes." Electrochemical Society, Honolulu, HI, 2012.
74. M.Chon, V. Sethuraman, P.R.Guduru. "Mechanics of crystalline to amorphous phase transformation in silicon." Electrochemical Society, Honolulu, HI 2012.

75. M. Song, L-Q..Wang, S. Nadimpalli, P.R.Guduru. “NMR studies on amorphous silicon.” Materials Research Society, Boston, MA, 2012.
76. P.R. Guduru, V. Sethuraman, M.J. Chon. “Stress-Potential Coupling in Silicon Anodes.” McMAT 2011 Meeting, Chicago, IL, May 30, 2011.
77. P.R. Guduru, V. Sethuraman, M.J. Chon. “Mechanical Behavior of Silicon Anodes in Li ion Batteries.” Society of Experimental Mechanics Annual Conference, Uncasville, CT, June 13, 2011.
78. P.R.Guduru, S. Nadimpalli, V. Sethuraman. “Mechancis of Lithium Ion Battery Materials.” ASME Winter Annual Meeting, Denver, CO, November 14, 2011.
79. P.R. Guduru. Mechanics aspects of Energy Storage Materials. NASA Battery Workshop, Huntsville, AL. 11/2010.
80. P.R.Guduru, V.A.Sethuraman, M.J.Chon, M.Shimshak. In situ stress measurements in Li-ion battery materials. Materials Research Society, 11/2010.
81. P.R.Guduru, V.A.Sethuraman, M.J.Chon, M.Shimshak. In situ stress measurements in Li-ion battery materials. Society for Engineering Science, 10/2010.
82. J.F. Waters and P.R. Guduru. ASME Applied Mechanics and Materials Conference, Boston, MA. 2008.
83. P.R. Guduru, J.F.Waters et al. Adhesion Society Conference, Seattle, WA, 2008.
84. Johnson J., Guduru P.R., Myers K, Socrate S, House M, Ji H, Long V, Chien EK. Measurement of the stress relaxation response to tension in the pregnant rat cervix. *Society for Gynecologic Investigation Annual Meeting*, 2007.
85. P.R. Guduru and J.F. Waters. ASME Applied Mechanics and Materials Conference McMat 2007, Austin, TX, June 2007.
86. P.R. Guduru, H. Yao, G. Della Rocca. ASME Applied Mechanics and Materials Conference McMat 2007, Austin, TX, June 2007.
87. P.R. Guduru and V. Gill. ASME Applied Mechanics and Materials Conference McMat 2007, Austin, TX, June 2007.
88. P.R. Guduru and J.F. Waters. Adhesion Society Conference. Tampa, FL. February 2007.
89. P.R. Guduru. Mechanics of Wavy Surface Adhesion. American Society of Mechanical Engineers. Chicago, IL. November 2006.
90. P.R. Guduru and S. Lee. Detachment of a Rigid Solid from a Wavy Elastic Surface. Society for Experimental Mechanics. St. Louis, MO. June 2006.
91. P.R. Guduru and J.F. Waters. Geometry Induced Friction Anisotropy in Biological Systems. Society for Experimental Mechanics. St. Louis, MO. June 2006.
92. P.R. Guduru. Mechanics of Wavy Surface Adhesion. ASME Winter Annual Meeting. Chicago. November, 2006.
93. P.R. Guduru. Adhesion of a wavy surface. McMat 2005 Joint ASME/ASCE/SES Conference on Mechanics and Materials, June 1-3, 2005. Baton Rouge, LA.
94. P.R. Guduru and V. Gill. Magnetic field induced surface diffusion and nanoscale surface sculpting. McMat 2005 Joint ASME/ASCE/SES Conference on Mechanics and Materials, June 1-3, 2005. Baton Rouge, LA.
95. P.R. Guduru, J.F. Waters and J.M. Xu. Uniaxial compression buckling of multiwalled carbon nanotubes. McMat 2005 Joint ASME/ASCE/SES Conference on Mechanics and Materials, June 1- 3, 2005. Baton Rouge, LA.
96. P.R. Guduru, Adhesion of a wavy surface. Society for Experimental Mechanics Annual Conference, Portland, OR. June 2005.
97. P.R. Guduru and V. Gill. Magnetic field induced surface diffusion and nanoscale surface

sculpting. McMat 2005 Society for Experimental Mechanics Annual Conference, Portland, OR. June 2005.

98. P.R. Guduru, J.F. Waters and J.M. Xu. Uniaxial compression buckling of multiwalled carbon nanotubes. Society for Experimental Mechanics Annual Conference, Portland, OR. June 2005.
99. P.R Guduru and B.W. Sheldon V. Gill. "Magnetic field induced surface diffusion." ASME Winter annual conference, Anaheim, CA. November 2004.
100. J.F. Waters, L. Riester, M. Jouzi, T. Hanlon, P.R. Guduru, J.M. Xu and S. Suresh. "Mechanics of Multi-Walled Carbon Nanotubes under Compression." ASME Winter annual conference, Anaheim, CA. November 2004.
101. P.R. Guduru**,** E. Chason and L.B. Freund, "Mechanics of Compressive Stress Evolution during Thin Film Growth," Society for Experimental Mechanics Annual conference, Rayleigh, NC, June 2003.
102. P.R. Guduru and L.B. Freund, "The Dynamics of Multiple Neck Formation and Fragmentation in Ductile Rods," Society for Experimental Mechanics Annual conference, Rayleigh, NC, June 2003.
103. P.R. Guduru**,** E. Chason and L.B. Freund, "Mechanics of Compressive Stress Evolution," Materials Research Society, San Francisco, April 2003.

10. Teaching

Undergraduate: ENGN0030: Introduction to Engineering (freshman), ENGN0040: Introduction to Dynamics and Vibrations (freshman), ENGN0310: Mechanics of Solids and Structures (sophomore and junior), ENGN1750: Advanced Mechanics of Solids (junior and senior), ENGN1300: Structural Analysis (junior and senior), ENGN1370: Advanced Engineering Mechanics (junior and senior).

Graduate: ENGN2210: Continuum Mechanics, ENGN2220: Mechanics of Solids, ENGN2380: Fracture Mechanics, ENGN2260: Stress Waves in Solids, ENGN2290: Plasticity, ENGN2920B: Mechanics of Energy Storage Materials.

11. Advising/Hosting

Postdoctoral Research Associates

- Kaiwen Xia, 2005 – 2006. Current position: Associate Professor, University of Toronto.
- Haimin Yao, 2006-2007. Current position: Professor, The Hong Kong Polytechnic University, Hong Kong.
- Vijay Sethuraman, 2011 – 2015. Current position: Assistant Professor, Indian Institute of Science, Bengaluru, India.
- Siva Nadimpalli, 2011 – 2013. Current position: Associate Professor, Michigan State University.
- Kai Yan, 2013 – 2016. Current position: Professor of Chemical Engineering, Sun Yat-Sen University, China.
- Naba Karan, 2013 – 2016. Current position: Assistant Professor (Research), University of Connecticut.
- Nitin Jadhav, 2011-2013. Scientist, IBM, New York.
- Mohit Gupta (2022-present), K.V.Vaishakh (2022-present), Siyuan Song (2023-present), Akshay Pakhare (2023 – present), Abhishek Gupta (2024 – present).

Graduate Students

- Vinaypreet Gill, Ph.D., 2008. Current position: Technology Development Manager, Intel Corporation, Portland, OR.
- Julie Waters, Ph.D., 2009. Current position: Director, Enterprise Analytics Division, Department of Homeland Security, Washington DC.
- Maxwell Shimshak, Sc.M., 2012. Current position: Senior Mechanical Engineer, Seriforge.
- Michael Chon, Ph.D., 2016. Current position: Postdoctoral Research Associate, MIT.
- Odysseas Skartsis, 2021. Current position: Research Engineer, NXP Semiconductors, Tempe, AZ.
- Insun Yoon, Ph.D., 2019. Current position: Postdoc at Lawrence Berkeley National Laboratory, Berkeley, CA.
- Shaghayegh Rezazadeh, Ph.D., 2019. Current position: Postdoc at University of Minnesota, Minneapolis, MN.
- Pinkesh Malhotra, Ph.D., 2020. Current Position: Apple Inc.
- Srijan Neogi, Thomas Pilvelait, Michael Daniti, Eric Stang, Chenjie Gan (current).

Undergraduate Honors Theses

- Alexandre Thierez, 2004 *Time-Resolved Dynamic Friction at Sliding Interfaces*. The Division of Engineering recommended the thesis for publication by Brown University. Thiriez received the *Joseph Kestin* award for his thesis from the Division of Engineering. Subsequently joined MIT for graduate studies.
- Shirlene Liew, 2007. *An experimental investigation of frictional behavior of polymer-microfiber surfaces*. The Division of Engineering recommended the thesis for publication by Brown University. Subsequently joined Stanford University as a graduate student.
- Elizabeth Dwulet, 2008. *Elastic contact under substrate strain*.
- Anthony Johnson, 2008. *Adhesion and sliding behavior of film terminated tilted fibrillar surfaces*. 2008. Graduated with Ph.D. from Northwestern University.
- Gerry Della Rocca, 2009. Mechanical Engineering, `09. *Adhesion instabilities in supported elastic films*. Graduated with PhD. from Caltech.
- Hiilei Dikilato, 2024. Mechanical Engineering. *Fabrication and Mechanical Behavior of Crossed-Lamellar Multi-Metal 3D-Printed Materials.*

Visitors Hosted

- William Oates, Professor of Mechanical Engineering, Florida A&M University (2007).
- Carl-Ernst Rousseau, Professor of Mechanical Engineering, University of Rhode Island (2015).
- Theresa Moreau, Professor of Engineering and Physics, Providence, College (2016).
- Laurent Guin, Assistant Professor, Ecole Polytechnique, France (2023 and 2024).
- Yury Nevvanchennay, Visiting student, Ecole Polytechnique, France (2023).
- Xavier Bruant, Visiting student, Ecole Polytechnique, France (2025).
- Arie Venkert, Visiting Scholar, Ben Gurion University (2024-25).
- Ryan Elliott, Visiting Professor, University of Minnesota (2024-25)