Oscar Lopez-Pamies

Department of Civil and Environmental Engineering
University of Illinois Urbana-Champaign
3106 Newmark Civil Engineering Laboratory
205 N. Mathews Avenue
Urbana, IL 61801-2352 USA

Phone: +1 (217) 244-1242
Fax: +1 (217) 265-8039
E-mail: pamies@illinois.edu
URL: http://pamies.cee.illinois.edu/

PERSONAL DATA

Date of Birth: January 20, 1978
Place of Birth: Alicante, Spain
Citizenship: USA

EDUCATION

Ph.D. in Mechanical Engineering & Applied Mechanics, 2006 (GPA 4.00/4.00)
Dissertation: *On the Effective Behavior, Microstructure Evolution, and Macroscopic Stability of Elastomeric Composites*
University of Pennsylvania
École Polytechnique (France)

Master of Science in Mechanical Engineering, 2002 (GPA 4.00/4.00)
Thesis: *Mechanical Behavior of the Polymer Adiprene-L100: Experiments and Modeling*
University of Maryland Baltimore County

Bachelor of Science in Mechanical Engineering, 2001 (GPA 3.85/4.00)
Bachelor of Arts in Mathematics, 2001 (GPA 3.85/4.00)
University of Maryland Baltimore County

C.O.U., 1996 (GPA 10/10)
Bachillerato Unificado Polivalente (branch: sciences), 1995 (GPA 10/10)
Instituto Saavedra Fajardo, Murcia (Spain)

LANGUAGES

Fluent in English, French, and Spanish

POSITIONS HELD

August 2022 – present | Colonel Harry F. & Frankie M. Lovell Endowed Professor

August 2020 – present | Professor

August 2015 – August 2020 | Associate Professor, CEE Excellence Faculty Scholar

August 2011 – August 2015 | Assistant Professor, CEE Excellence Faculty Fellow
Department of Civil and Environmental Engineering

August 2025 – present | Faculty Affiliate
Beckman Institute for Advanced Science & Technology
University of Illinois Urbana-Champaign

September 2021 – August 2022 | Professor "Classe Exceptionnelle"
Department of Mechanics
École Polytechnique (France)

September 2007 – August 2011 | Assistant Professor
Department of Mechanical Engineering
State University of New York, Stony Brook

January 2007 – August 2007 | Research Scholar
Department of Mechanical Engineering & Applied Mechanics
University of Pennsylvania

September 2006 – September 2007 | Postdoctoral Researcher
Laboratoire de Mécanique des Solides
École Polytechnique (France)

VISITING POSITIONS

June 2015 | Visiting Professor
Department of Mathematics
Pontificia Universidad Católica de Chile (Chile)

January 2011 | Visiting Researcher
OCCAM, Mathematical Institute
University of Oxford (UK)

May – June 2013, **June – July 2011**, **July – August 2008** | Visiting Researcher
Laboratoire de Mécanique des Solides
École Polytechnique (France)

EDITORSHIPS

Editorial Board, Journal of Engineering Mathematics, Springer, 2023 to present

Guest Editor, Special Issue: Phase-Field Approaches to Fracture in the 3rd Millennium
`https://link.springer.com/collections/agiddccage`
International Journal of Fracture, Springer, 2022

Advisory Board, Forces in Mechanics, Elsevier, 2020 to present

Editorial Board, Journal of Elasticity, Springer, 2019 to present

HONORS AND AWARDS

- Colonel Harry F. & Frankie M. Lovell Professorship, University of Illinois Urbana-Champaign, 2022
- CEE Excellence Faculty Scholar, University of Illinois Urbana-Champaign, 2018
- Young Investigator Medal, Society of Engineering Science, 2017
- Journal of Applied Mechanics Award, American Society of Mechanical Engineers, 2014
- Teacher Ranked as Excellent, University of Illinois Urbana-Champaign, Spring 2013, 2017, 2025

- CEE Excellence Faculty Fellow, University of Illinois Urbana-Champaign, 2012
- CAREER Award, National Science Foundation, 2011
- Young Scientist Prize, European Solid Mechanics Conference, 2009
- Thesis Award, École Polytechnique, 2007
- Thesis Award Finalist of ParisTech (top 9 among 514 theses), 2007
- Inducted into the Athletic Hall of Fame UMBC, 2006
- Student-Athlete of the Year, UMBC, 2000
- Second Team Academic All American, 2000
- First Team Academic All American, 1999
- Member of the Math Team, UMBC, 1998 – 2001

PUBLICATIONS

Publications in Refereed Journals

J105. Zhou, J., Lefèvre, V., Lopez-Pamies, O. 2026. Abaqus implementation of the phase-field approach to fracture. Submitted.

J104. Kamarei, F., Bueno De Castro, S., Roesler, J.R., Lopez-Pamies, O. 2026. Fracture under body forces: An accessible test and analysis. Submitted.

J103. Lopez-Pamies, O., Kamarei, F., Francfort, G.A., Giacomini, A. 2026. Nucleation and propagation of brittle fracture as a constrained energy minimization problem. Submitted.

J102. Saha, S., Moore, B.J., Manaugh, B., Roesler, J.R., Lopez-Pamies, O. 2026. A guide to fully characterize the fracture properties of cementitious materials from simple experiments. Submitted.

J101. Saha, S., Roesler, J.R., O. Lopez-Pamies, O. 2026. Breaking four-point and three-point bending tests. International Journal of Solids and Structures 339, 114169.

J100. Kamarei, F., Zeng, B., Dolbow, J.E., Lopez-Pamies, O. 2026. Nine circles of elastic brittle fracture: A series of challenge problems to assess fracture models. Computer Methods in Applied Mechanics and Engineering 448, 118449.

J99. Kamarei, F., Sozio, F., Lopez-Pamies, O. 2026. The single edge notch fracture test for viscoelastic elastomers. Journal of Theoretical, Computational and Applied Mechanics 16652.

J98. Lopez-Pamies, O., Kamarei, F. 2025. When and where do large cracks grow? Griffith energy competition constrained by material strength. Extreme Mechanics Letters 81, 102417.

J97. Kamarei, F., Breedlove, E., Lopez-Pamies, O. 2025. Nucleation and propagation of fracture in viscoelastic elastomers: A complete phase-field theory. Computer Methods in Applied Mechanics and Engineering 446, 118337.

J96. Kamarei, F., Breedlove, E., Lopez-Pamies, O. 2025. Validating Griffith fracture propagation in the phase- field approach to fracture: The case of Mode III by means of the trousers test. International Journal of Fracture 249, 5.

J95. Moronkeji, O., Sozio, F., Ghosh, K., Meddeb, A., Farahani, A., Ounaies, Z., Chasiotis, I., Lopez- Pamies, O. 2025. The nonlinear elastic deformation of liquid inclusions embedded in elastomers. Journal of the Mechanics and Physics of Solids 200, 106126.

J94. Kamarei, F., Dolbow, J.E., Lopez-Pamies, O. 2025. Nucleation of fracture: The first-octant evidence against classical variational phase-field models. Journal of Applied Mechanics 92, 014502.

J93. Lopez-Pamies, O., Dolbow, J.E., Francfort, G.A., Larsen, C.J. 2025. Classical variational phase-field models cannot predict fracture nucleation. Computer Methods in Applied Mechanics and Engineering 433, 117520.

J92. Casado Díaz, J., Francfort, G.A., Lopez-Pamies, O., Mora, M.G. 2025. Liquid filled elastomers: From linearization to elastic enhancement. Archive for Rational Mechanics and Analysis 249, 5.

J91. de Lorenzo, M., Le Tallec, P., Lopez-Pamies, O., Bussetta, P. 2024. Filled elastomers sliding over smooth obstacles: Experiments and modeling in large deformations. Journal of the Mechanics and Physics of Solids 193, 105899.

J90. Saha, S., Dolbow, J.E., Lopez-Pamies, O. 2024. A Griffith description of fracture for non-monotonic loading with application to fatigue. Journal of the Mechanics and Physics of Solids 191, 105754.

J89. Breedlove, E., Chen, C., Lindeman, D., Lopez-Pamies, O. 2024. Cavitation in elastomers: A review of the evidence against elasticity. Journal of the Mechanics and Physics of Solids 188, 105678.

J88. Kamarei, F., Kumar, A., Lopez-Pamies, O. 2024. The poker-chip experiments of synthetic elastomers. Journal of the Mechanics and Physics of Solids 188, 105683.

J87. Larsen, C.J., Dolbow, J.E., Lopez-Pamies, O. 2024. A variational formulation of Griffith phase-field fracture with material strength. International Journal of Fracture 247, 319–327.

J86. Lefèvre, V., Sozio, F., Lopez-Pamies, O. 2024. Abaqus implementation of a large family of finite viscoelasticity models. Finite Elements in Analysis and Design 232, 104114.

J85. Sozio, F., Lallet, F., Perriot, A., Lopez-Pamies, O. 2024. The nonlinear elastic response of bicontinuous rubber blends. International Journal of Solids and Structures 290, 112660.

J84. Liu, Y., Zhong, P., Lopez-Pamies, O., Dolbow, J.E. 2024. A model-based simulation framework for coupled acoustics, elastodynamics, and damage with application to nano-pulse lithotripsy. International Journal of Solids and Structures 289, 112626.

J83. Kumar, A., Li, Y., Dolbow, J.E., Lopez-Pamies, O. 2024. The strength of the Brazilian fracture test. Journal of the Mechanics and Physics of Solids 182, 105473.

J82. Wijaya, I.P.A., Lopez-Pamies, O., Masud, A. 2023. A unified determinant-preserving formulation for compressible/incompressible finite viscoelasticity. Journal of the Mechanics and Physics of Solids 177, 105312.

J81. Shrimali, B., Lopez-Pamies, O. 2023. The trousers fracture test for viscoelastic elastomers. Journal of Applied Mechanics 90, 071010.

J80. Shrimali, B., Lopez-Pamies, O. 2023. The delayed fracture test for viscoelastic elastomers. International Journal of Fracture 242, 23–38.

J79. Shrimali, B., Lopez-Pamies, O. 2023. The "pure-shear" fracture test for viscoelastic elastomers and its revelation on Griffith fracture. Extreme Mechanics Letters 58, 101944.

J78. Jia, Y., Lopez-Pamies, O., Zhang, X.S. 2023. Controlling the fracture response of structures via topology optimization: From delaying fracture nucleation to maximizing toughness. Journal of the Mechanics and Physics of Solids 173, 105227.

J77. Ghosh, K., Lefèvre, V., Lopez-Pamies, O. 2023. The effective shear modulus of a random isotropic suspension of monodisperse liquid n-spheres: From the dilute limit to the percolation threshold. Soft Matter 19, 208–224.

J76. Ghosh, K., Lefèvre, V., Lopez-Pamies, O. 2023. Homogenization of elastomers filled with liquid inclusions: The small-deformation limit. Journal of Elasticity 154, 235–253.

J75. Shrimali, B., Ghosh, K., Lopez-Pamies, O. 2023. The nonlinear viscoelastic response of suspensions of vacuous bubbles in rubber: I — Gaussian rubber with constant viscosity. Journal of Elasticity 153, 479–508.

J74. Lefèvre, V., Francfort, G.A., Lopez-Pamies, O. 2022. The curious case of 2D isotropic incompressible Neo-Hookean composites. Journal of Elasticity 151, 177–186.

J73. Lefèvre, V., Lopez-Pamies, O. 2022. The effective shear modulus of a random isotropic suspension of monodisperse rigid n-spheres: From the dilute limit to the percolation threshold. Extreme Mechanics Letters 55, 101818.

J72. Kumar, A., Ravi-Chandar, K., Lopez-Pamies, O. 2022. The revisited phase-field approach to brittle fracture: Application to indentation and notch problems. International Journal of Fracture 237, 83–100.

J71. Ghosh, K., Lopez-Pamies, O. 2022. Elastomers filled with liquid inclusions: Theory, numerical implementation, and some basic results. Journal of the Mechanics and Physics of Solids 166, 104930.

J70. Francfort, G.A., Gloria, A., Lopez-Pamies, O. 2021. Enhancement of elasto-dielectrics by homogenization of active charges. Journal de Mathématiques Pures et Appliquées 152, 392–419.

J69. Ghosh, K., Shrimali, B., Kumar, A., Lopez-Pamies, O. 2021. The nonlinear viscoelastic response of suspensions of rigid inclusions in rubber: I — Gaussian rubber with constant viscosity. Journal of the Mechanics and Physics of Solids 154, 104544.

J68. Shrimali, B., Pezzulla, M., Poincloux, S., Reis, P.M., Lopez-Pamies, O. 2021. The remarkable bending properties of perforated plates. Journal of the Mechanics and Physics of Solids 154, 104514.

J67. Kumar, A., Lopez-Pamies, O. 2021. The poker-chip experiments of Gent and Lindley (1959) explained. Journal of the Mechanics and Physics of Solids 150, 104359.

J66. Ghosh, K., Lopez-Pamies, O. 2021. On the two-potential constitutive modeling of dielectric elastomers. Meccanica 56, 1505–1521.

J65. Shrimali, B., Parnell, W.J., Lopez-Pamies, O. 2020. A simple explicit model constructed from a homogenization solution for the large-strain mechanical response of elastomeric syntactic foams. International Journal of Non-Linear Mechanics 126, 103548.

J64. Kumar, A., Bourdin, B., Francfort, G.A., Lopez-Pamies, O. 2020. Revisiting nucleation in the phase- field approach to brittle fracture. Journal of the Mechanics and Physics of Solids 142, 104027.

J63. Kumar, A., Lopez-Pamies, O. 2020. The phase-field approach to self-healable fracture of elastomers: A model accounting for fracture nucleation at large, with application to a class of conspicuous experiments. Theoretical and Applied Fracture Mechanics 107, 102550.

J62. Lefèvre, V., Danas, K., Lopez-Pamies, O. 2020. Two families of explicit models constructed from a homogenization solution for the magnetoelastic response of MREs containing iron and ferrofluid particles. International Journal of Non-Linear Mechanics 119, 103362.

J61. Leonard, M., Wang, N., Lopez-Pamies, O., Nakamura, T. 2020. The nonlinear elastic response of filled elastomers: Experiments vs. theory for the basic case of particulate fillers of micrometer size. Journal of the Mechanics and Physics of Solids 135, 103781.

J60. Ghosh, K., Guo, J., Lopez-Pamies, O. 2019. Homogenization of time-dependent dielectric composites containing space charges, with applications to polymer nanoparticulate composites. International Journal of Non-Linear Mechanics 116, 155–166.

J59. Lefèvre, V., Garnica, A., Lopez-Pamies, O. 2019. A WENO finite-difference scheme for a new class of Hamilton-Jacobi equations in nonlinear solid mechanics. Computer Methods in Applied Mechanics and Engineering 349, 17–44.

J58. Shrimali, B., Lefèvre, V., Lopez-Pamies, O. 2019. A simple explicit homogenization solution for the macroscopic elastic response of isotropic porous elastomers. Journal of the Mechanics and Physics of Solids 122, 364–380.

J57. Meddeb, A.B., Tighe, T., Ounaies, Z., Lopez-Pamies, O. 2019. Extreme enhancement of the nonlinear elastic response of elastomer nanoparticulate composites via interphases. Composites Part B 156, 166–173.

J56. Francfort, G.A., Giacomini, A., Lopez-Pamies, O. 2019. Fracture with healing: A first step towards a new view of cavitation. Analysis and PDE 12, 417–447.

J55. Kumar, A., Ravi-Chandar, K., Lopez-Pamies, O. 2018. The configurational-forces view of fracture and healing in elastomers as a phase transition. International Journal of Fracture 213, 1–16.

J54. Poulain, X., Lopez-Pamies, O., Ravi-Chandar, K. 2018. Damage in elastomers: Healing of internally nucleated cavities and micro-cracks. Soft Matter 14, 4633–4640.

J53. Kumar, A., Francfort, G.A., Lopez-Pamies, O. 2018. Fracture and healing of elastomers: A phase- transition theory and numerical implementation. Journal of the Mechanics and Physics of Solids 112, 523–551.

J52. Lefèvre, V., Danas, K., Lopez-Pamies, O. 2017. A general result for the magnetoelastic response of isotropic suspensions of iron and ferrofluid particles in rubber, with applications to spherical and cylindrical specimens. Journal of the Mechanics and Physics of Solids 107, 343–364.

J51. Lefèvre, V., Lopez-Pamies, O. 2017. Homogenization of elastic dielectric composites with rapidly oscillating passive and active source terms. SIAM Journal on Applied Mathematics 77, 1962–1988.

J50. Poulain, X., Lefèvre, V., Lopez-Pamies, O., Ravi-Chandar, K. 2017. Damage in elastomers: Nucleation and growth of cavities, micro-cracks, and macro-cracks. International Journal of Fracture 205, 1–21.

J49. Kumar, A., Aranda-Iglesias, D., Lopez-Pamies, O. 2017. Some remarks on the effects of inertia and viscous dissipation in the onset of cavitation in rubber. Journal of Elasticity 126, 201–213.

J48. Lefèvre, V., Lopez-Pamies, O. 2017. Nonlinear electroelastic deformations of dielectric elastomer composites: II — Non-Gaussian elastic dielectrics. Journal of the Mechanics and Physics of Solids 99, 438–470.

J47. Lefèvre, V., Lopez-Pamies, O. 2017. Nonlinear electroelastic deformations of dielectric elastomer composites: I — Ideal elastic dielectrics. Journal of the Mechanics and Physics of Solids 99, 409–437.

J46. Kumar, A., Lopez-Pamies, O. 2016. On the two-potential constitutive modeling of rubber viscoelastic materials. Comptes Rendus Mecanique 344, 102–112.

J45. Chi, H., Talischi, C., Lopez-Pamies, O., Paulino, G.H. 2016. A paradigm for higher-order polygonal elements in finite elasticity using a gradient correction scheme. Computer Methods in Applied Mechanics and Engineering 306, 216–251.

J44. Chi, H., Lopez-Pamies, O., Paulino, G.H. 2016. A variational formulation with rigid-body constraints for finite elasticity: Theory, finite element implementation, and applications. Computational Mechanics 57, 325–338.

J43. Lefèvre, V., Lopez-Pamies, O. 2015. The overall elastic dielectric properties of fiber- strengthened/weakened elastomers. Journal of Applied Mechanics 82, 111009.

J42. Spinelli, S.A., Lefèvre, V., Lopez-Pamies, O. 2015. Dielectric elastomer composites: A general closed- form solution in the small-deformation limit. Journal of the Mechanics and Physics of Solids 83, 263–284.

J41. Goudarzi, T., Spring, D.W., Paulino, G.H., Lopez-Pamies, O. 2015. Filled elastomers: A theory of filler reinforcement based on hydrodynamic and interphasial effects. Journal of the Mechanics and Physics of Solids 80, 37–67.

J40. Chi, H., Talischi, C., Lopez-Pamies, O., Paulino, G.H. 2015. Polygonal finite elements for finite elasticity. International Journal for Numerical Methods in Engineering 101, 305–328.

J39. Spinelli, S.A., Lopez-Pamies, O. 2015. Some simple explicit results for the elastic dielectric properties and stability of layered composites. International Journal of Engineering Science 88, 15–28.

J38. Lefèvre, V., Ravi-Chandar, K., Lopez-Pamies, O. 2015. Cavitation in rubber: An elastic instability or a fracture phenomenon?. International Journal of Fracture 192, 1–23.

J37. Lefèvre, V., Lopez-Pamies, O. 2014. The overall elastic dielectric properties of a suspension of spherical particles in rubber: An exact explicit solution in the small-deformation limit. Journal of Applied Physics 116, 134106.

J36. Lopez-Pamies, O., Goudarzi, T., Meddeb, A.B., Ounaies, Z. 2014. Extreme enhancement and reduction of the dielectric response of polymer nanoparticulate composites via interphasial charges. Applied Physics Letters 104, 242904.

J35. Spinelli, S.A., Lopez-Pamies, O. 2014. A general closed-form solution for the overall response of piezoelectric composites with random and periodic particulate microstructures. International Journal of Solids and Structures 51, 2979–2989.

J34. Lopez-Pamies, O. 2014. Elastic dielectric composites: Theory and application to particle-filled ideal dielectrics. Journal of the Mechanics and Physics of Solids 64, 61–82.

J33. Goudarzi, T., Lopez-Pamies, O. 2013. Numerical modeling of the nonlinear elastic response of filled elastomers via composite-sphere assemblages. Journal of Applied Mechanics 80, 050906.

J32. Lopez-Pamies, O., Goudarzi, T., Danas, K. 2013. The nonlinear elastic response of suspensions of rigid inclusions in rubber: II — A simple explicit approximation for finite-concentration suspensions. Journal of the Mechanics and Physics of Solids 61, 19–37.

J31. Lopez-Pamies, O., Goudarzi, T., Nakamura, T. 2013. The nonlinear elastic response of suspensions of rigid inclusions in rubber: I — An exact result for dilute suspensions. Journal of the Mechanics and Physics of Solids 61, 1–18.

J30. Lopez-Pamies, O., Ponte Castañeda, P., Idiart, M.I. 2012. Effects of internal pore pressure on closed- cell elastomeric foams. International Journal of Solids and Structures 49, 2793–2798.

J29. Bertoldi, K., Lopez-Pamies, O. 2012. Some remarks on the effect of interphases on the mechanical response and stability of fiber-reinforced elastomers. Journal of Applied Mechanics 79, 031023.

J28. Idiart, M.I., Lopez-Pamies, O. 2012. On the overall response of elastomeric solids with pressurized cavities. Comptes Rendus Mecanique 340, 359–368.

J27. Nakamura, T., Lopez-Pamies, O. 2012. A finite element approach to study cavitation instabilities in nonlinear elastic solids under general loading conditions. International Journal of Non-Linear Mechanics 47, 331–340.

J26. Lopez-Pamies, O., Moraleda, J., Segurado, J., Llorca, J. 2012. On the extremal properties of Hashin's hollow cylinder assemblage in nonlinear elasticity. Journal of Elasticity 107, 1–10.

J25. Lopez-Pamies, O., Nakamura, T., Idiart, M.I. 2011. Cavitation in elastomeric solids: II — Onset-of- cavitation surfaces for Neo-Hookean materials. Journal of the Mechanics and Physics of Solids 59, 1488–1505.

J24. Lopez-Pamies, O., Idiart, M.I., Nakamura, T. 2011. Cavitation in elastomeric solids: I — A defect- growth theory. Journal of the Mechanics and Physics of Solids 59, 1464–1487.

J23. Lopez-Pamies, O., Idiart, M.I., Li, Z. 2011. On microstructure evolution in fiber-reinforced elastomers and implications for their mechanical response and stability. Journal of Engineering Materials and Technology 133, 011007.

J22. Michel, J.C., Lopez-Pamies, O., Ponte Castañeda, P., Triantafyllidis, N. 2010. Microscopic and macroscopic instabilities in finitely strained fiber-reinforced elastomers. Journal of the Mechanics and Physics of Solids 58, 1776–1803.

J21. Lopez-Pamies, O., Idiart, M.I. 2010. Fiber-reinforced hyperelastic solids: A realizable homogenization constitutive theory. Journal of Engineering Mathematics 68, 57–83.

J20. Lopez-Pamies, O. 2010. A new I1-based hyperelastic model for rubber elastic materials. Comptes Rendus Mecanique 338, 3–11.

J19. Racherla, V., Lopez-Pamies, O., Ponte Castañeda, P. 2010. Macroscopic response and onset of instabilities in lamellar nanostructured elastomers with "oriented" and "unoriented" polydomain microstructures. Mechanics of Materials 42, 451–468.

J18. Lopez-Pamies, O. 2010. An exact result for the macroscopic response of particle-reinforced Neo-Hookean solids. Journal of Applied Mechanics 77, 021016.

J17. Lopez-Pamies, O., Idiart, M.I. 2009. An exact result for the macroscopic behavior of porous Neo-Hookean solids. Journal of Elasticity 95, 99–105.

J16. Lopez-Pamies, O. 2009. Onset of cavitation in compressible, isotropic, hyperelastic solids. Journal of Elasticity 94, 115–145.

J15. Agoras, M., Lopez-Pamies, O., Ponte Castañeda, P. 2009. Onset of macroscopic instabilities in fiber- reinforced nonlinearly elastic materials. Journal of the Mechanics and Physics of Solids 57, 1828–1850.

J14. Agoras, M., Lopez-Pamies, O., Ponte Castañeda, P. 2009. A general hyperelastic model for incompressible fiber-reinforced elastomers. Journal of the Mechanics and Physics of Solids 57, 268–286.

J13. Lopez-Pamies, O., Ponte Castañeda, P. 2009. Microstructure evolution in hyperelastic laminates and implications for overall behavior and macroscopic stability. Mechanics of Materials 41, 364–374.

J12. Lopez-Pamies, O., Garcia, R., Chabert, E., Cavaillé, J.-Y., Ponte Castañeda, P. 2008. Multiscale modeling of oriented thermoplastic elastomers with lamellar morphology. Journal of the Mechanics and Physics of Solids 56, 3206–3223.

J11. Lopez-Pamies, O., Ponte Castañeda, P. 2007. Homogenization-based constitutive models for porous elastomers and implications for macroscopic instabilities: II — Results. Journal of the Mechanics and Physics of Solids 55, 1702–1728.

J10. Lopez-Pamies, O., Ponte Castañeda, P. 2007. Homogenization-based constitutive models for porous elastomers and implications for macroscopic instabilities: I — Analysis. Journal of the Mechanics and Physics of Solids 55, 1677–1701.

J9. Brun, M., Lopez-Pamies, O., Ponte Castañeda, P. 2007. Homogenization estimates for fiber-reinforced elastomers with periodic microstructures. International Journal of Solids and Structures 44, 5953–5979.

J8. Michel, J.C., Lopez-Pamies, O., Ponte Castañeda, P., Triantafyllidis, N. 2007. Microscopic and macroscopic instabilities in finitely strained porous elastomers. Journal of the Mechanics and Physics of Solids 55, 900–938.

J7. Lopez-Pamies, O., Ponte Castañeda, P. 2006. On the overall behavior, microstructure evolution, and macroscopic stability in reinforced rubbers at large deformations: II — Application to cylindrical fibers. Journal of the Mechanics and Physics of Solids 54, 831–863.

J6. Lopez-Pamies, O., Ponte Castañeda, P. 2006. On the overall behavior, microstructure evolution, and macroscopic stability in reinforced rubbers at large deformations: I — Theory. Journal of the Mechanics and Physics of Solids 54, 807–830.

J5. Khan, A.S., Lopez-Pamies, O., Kazmi, R. 2006. Thermo-mechanical large deformation response and constitutive modeling of viscoelastic polymers over a wide range of strain rates and temperatures. International Journal of Plasticity 22, 581–601.

J4. Lopez-Pamies, O., Ponte Castañeda, P. 2004. Second-order estimates for the macroscopic response and loss of ellipticity of porous rubbers at large deformations. Journal of Elasticity 76, 247–287.

J3. Lopez-Pamies, O., Ponte Castañeda, P. 2004. Second-order homogenization estimates incorporating field fluctuations in finite elasticity. Mathematics and Mechanics of Solids 9, 243–270.

J2. Lopez-Pamies, O., Ponte Castañeda, P. 2004. Second-order estimates for the large-deformation response of particle-reinforced rubbers. Comptes Rendus Mecanique 331, 1–8.

J1. Khan, A.S., Lopez-Pamies, O. 2002. Time and temperature dependent response and relaxation of a soft polymer. International Journal of Plasticity 18, 1359–1372.

Book Chapters

B2. Lopez-Pamies, O. 2023. The Elastic Dielectric Response of Elastomers Filled with Liquid Inclusions: From Fundamentals to Governing Equations. In: K. Danas and O. Lopez-Pamies (eds.) Electro- and MagnetoMechanics of Soft Solids, CISM, Springer.

B1. Paulino, G.H., Chi., H, Talischi, C., Lopez-Pamies, O. 2017. Extremely Large Deformations with Polygonal and Polyhedral Elements. In: K. Hormann and N. Sukumar (eds.) Generalized Barycentric Coordinates in Computer Graphics and Computational Mechanics, CRC Press, pp. 197–228. ISBN 9781498763592.

Publications in Conference Proceedings and Newsletters

N1. Lopez-Pamies, O. 2014. Cavitation in rubber: The role of elasticity. EUROMECH Newsletter 45.

P5. Meddeb, A., Ounaies, Z., Lopez-Pamies, O., 2019. Interfacial effects on the electrical behavior of elastomer nanoparticulate composites. Proceedings of SPIE 10968, 1-9.

P4. Lopez-Pamies, O., Nakamura, T. 2010. Analytical and numerical solutions for the onset of cavitation in rubber under unequal stresses. Proceedings of the 2010 M&M International Symposium for Young Researchers, California Institute of Technology, Pasadena, CA.

P3. Idiart, M.I., Lopez-Pamies, O. 2009. A realizable constitutive model for fiber-reinforced Neo-Hookean solids. XVIII Congreso sobre Métodos Numéricos y sus Aplicaciones ENIEF 2009, Tandil, Argentina.

P2. Lopez-Pamies, O., Khan, A.S. 2002. Three-dimensional, finite deformation, constitutive model for predominantly viscoelastic soft polymers. Proceedings of Plasticity '02: The Ninth International Symposium on Plasticity and Its Current Applications, Aruba, 144-146.

P1. Lopez-Pamies, O., Khan, A.S. 2000. Relaxation and mechanical response to strain rate and temperature of the polymer Adiprene-L100. Proceedings of Plasticity '00: The Eighth International Symposium on Plasticity and Its Current Applications, Whistler, Canada, 588a-588c.

GRANTS AND FELLOWSHIPS

G21. "Concrete Elasticity, Strength, Fracture Toughness and 3D Modeling for Improving QA/QC Protocols and Airfield Slab Capacity Prediction." PIs: J.R. Roesler, O. Lopez-Pamies. Period: September 2026 – August 2029. Funded by FAA.

G20. "Complete Theory and Simulation for Interfacial Failure of Pressure Sensitive Adhesives." PI: O. Lopez-Pamies. Period: July 2026 – December 2027. Funded by 3M.

G19. "Chicago Rockford International Airport Prestress Concrete and Fiber Reinforced Concrete (FRC) Pavement Evaluation." PI: J.R. Roesler; Co-PI: N. Garg, J. Henschen, O. Lopez-Pamies. Period: April 2025 – March 2026. Funded by FAA.

G18. "Brittle Fracture of Dissipative Solids." PI: O. Lopez-Pamies. Period: August 2023 – August 2026. Funded by NSF/DMS – Applied Mathematics. Award Number: DMS–2308169.

G17. "A Nucleation and Propagation Theory of Cavitation in Viscoelastic Solids." PI: O. Lopez-Pamies. Period: January 2023 – January 2026. Funded by 3M.

G16. "Homogenization of the Viscoelastic Response of Incompatible Blends of Filled Elastomers Under Quasi- Static Finite Deformations." PI: O. Lopez-Pamies. Period: April 2022 – April 2023. Funded by Michelin.

G15. "A Unified Theory of Crack Nucleation and Growth for Materials Subjected to Repetitive Surface Acoustic Waves and Dynamic Impacts." PIs: J.E. Dolbow, O. Lopez-Pamies; Co-PI: P. Zhong. Period: August 2021 – August 2024. Funded by NSF/CMMI – Mechanics of Materials and Structures. Award Number: CMMI–2132528.

G14. "EAGER: Integrating Fracture Nucleation and Propagation into Optimization: Towards Materials with Optimal Fracture Properties." PI: S. Zhang; Co-PI: O. Lopez-Pamies. Period: August 2021 – July 2022. Funded by NSF/CMMI – Mechanics of Materials and Structures. Award Number: CMMI–2127134.

G13. "DMREF: Elastomers Filled with Electro- and Magneto-Active Fluid Inclusions: A New Paradigm for Soft Active Materials." PIs: O. Lopez-Pamies, Z. Ouanies; Co-PIs: I. Chasiotis, G.A. Francfort. Period: September 2019 – August 2023. Funded by NSF/DMREF – Applied Mathematics. Award Number: DMREF–1922371.

G12. "Fracture and Healing of Elastomers: An Experimental and Theoretical Investigation at High Spatiotemporal Resolution." PIs: O. Lopez-Pamies, K. Ravi-Chandar. Period: June 2019

– May 2022. Funded by NSF/CMMI – Mechanics of Materials and Structures. Award Number: CMMI–1901583.

G11. "Innatam: Low Voltage, Flexible, Polymer Actuators." PI: C. Evans, Co-PIs: P. Braun, O. Lopez-Pamies. Period: June 2017 – June 2018. Funded by Facebook.

G10. "Extreme Enhancement of the Electromechanical Properties of Soft Nano-Particulate Composites via Interphases." PIs: O. Lopez-Pamies, Z. Ounaies. Period: May 2017 – April 2020. Funded by NSF/CMMI – Mechanics of Materials and Structures. Award Number: CMMI–1661853.

G9. "Fracture in Soft Organic Solids — The Variational View." PIs: O. Lopez-Pamies, G.A. Francfort, Michael J. Shelley. Period: August 2016 – July 2020. Funded by NSF/DMS – Applied Mathematics. Award Number: DMS–1615661.

G8. "Conference Support for Fifteenth Pan-American Congress of Applied Mechanics (PACAM XV); Champaign, IL, May 18–21, 2015." PI: O. Lopez-Pamies. Funded by the Department of Civil and Environmental Engineering, University of Illinois Urbana-Champaign.

G7. "Polygonal and Polyhedral Elements as a New Computational Paradigm to Study Soft Materials." PIs: G.H. Paulino; Co-PI: O. Lopez-Pamies. Period: September 2014 – February 2017. Funded by NSF/CMMI – Mechanics of Materials. Award Number: CMMI–1437535.

G6. "EAGER: Processing and Characterization of Soft Active Nanoparticulate Composites." PIs: O. Lopez- Pamies, Z. Ounaies, K. Dayal; Co-PI: I. Chasiotis,. Period: September 2013 – February 2015. Funded by NSF/CMMI – Design of Engineering Material Systems. Award Number: CMMI–1349535.

G5. "Damage in Soft Solids: Elasticity vs. Fracture." PIs: O. Lopez-Pamies, K. Ravi-Chandar. Period: September 2012 – August 2016. Funded by NSF/CMMI – Mechanics of Materials. Award Number: CMMI–1235352.

G4. "Bottom-Up Design of Soft Electroactive Materials." PI: O. Lopez-Pamies; Co-PI: G.H. Paulino. Period: August 2012 – August 2013. Funded by CEE Innovation Grants Program, University of Illinois Urbana- Champaign.

G3. "A Novel Class of Hamilton-Jacobi Equations to Investigate the Initiation and Propagation of Damage in Soft Solids." PI: O. Lopez-Pamies; Co-PI: R.S. Laugesen. Period: August 2012 – August 2013. Initiative for Mathematical Sciences and Engineering, University of Illinois Urbana-Champaign.

G2. "CAREER: Novel Homogenization Approaches to Study the Electromechanical Behavior and Stability of Soft Electrostrictive Composites." PI: O. Lopez-Pamies. Period: February 2011 – January 2017. Funded by NSF/CMMI – Mechanics of Materials. Award Number: CMMI–1055528.

G1. "Iterative Homogenization Methods to Study Cavitation in Soft Solids." PI: O. Lopez-Pamies. Period: September 2010 – August 2014. Funded by NSF/DMS – Applied Mathematics. Award Number: DMS–1009503.

DOCTORAL STUDENTS

Nicolas Duran Torres, Ph.D. 2029 (expected). Thesis title: TDB.

Farhad Kamarei, Ph.D. 2027 (expected). Thesis title: "Nucleation and Propagation of Fracture in Viscoelastic Elastomers: A Complete Phase-Field Theory and Robust Numerical Implementation."

Subhrangsu Saha, Ph.D. 2026. Thesis title: "Fracture in Hard Elastic Brittle Materials Under Monotonic and Non-monotonic Loading."

Bhavesh Shrimali, Ph.D. 2023. Thesis title: "On the Mechanics of Deformation and Fracture of Porous Elastomers."

Kamalendu Ghosh, Ph.D. 2022. Thesis title: "The Mechanics of Elastomers Filled with Electro-Active Solid and Fluid Inclusions."

Aditya Kumar, Ph.D. 2020. Thesis title: "Nucleation and Propagation of Fracture and Healing in Elastomers."

Victor Lefèvre, Ph.D. 2017. Thesis title: "Dielectric Elastomer Composites: Analytical and Numerical Non- Convex Homogenization Methods and Applications."

Taha Goudarzi, Ph.D. 2014. Thesis title: "Iterative and Variational Homogenization Methods for Particle- Filled Elastomers."

MASTERS STUDENTS

Jiangwei Zhou, M.S. 2026. Thesis title: "Abaqus Implementation of the Phase-Field Fracture Theory With Strength."

Zixiao Wang, M.S. 2026. Thesis title: "Fracture Homogenization of Porous Brittle Materials Using Phase-field Approach by means of the Double Cantilever Beam Test."

Jinlong Guo, M.S. 2019. Thesis title: "Time-Dependent Dielectric Response of Polymer Nanoparticulate Composites Containing Rapidly Oscillating Source Terms."

Aditya Kumar, M.S. 2016. Thesis title: "On the Two-Potential Constitutive Modeling of Rubber Viscoelastic Materials."

Alvaro D. Garnica, M.S. 2016. Thesis title: "A WENO Finite-Difference Scheme for a New Class of Hamilton-Jacobi Equations in Nonlinear Electroelastostatics."

Heng Chi, M.S. 2014. Thesis title: "Polygonal Finite Elements for Finite Elasticity" (co-advised by Prof. G.H. Paulino).

Stephen A. Spinelli, M.S. 2014. Thesis title: "Some Simple Explicit Results for the Elastic Dielectric Properties and Stability of Layered Composites."

Sumantu Iyer, M.S. 2010. Thesis title: "Overall Properties of Piezoelectric Particulate Composites: Homogenization Estimates and Finite-Element Simulations."

Zhiyun Li, M.S. 2010. Thesis title: "On Microstructure Evolution in Fiber-Reinforced Elastomers and Implications for Their Mechanical Response and Stability."

Yu Chen, M.S. 2010. Thesis title: "Cavitation Phenomena in Hyperelastic Solids: A Finite-Element Approach."

POST-DOCTORAL FELLOWS

Fabio Sozio, April 2022 – January 2025. Project title: "The dissipative mechanics of rubber blends at finite deformations"

VISITING STUDENTS

Guillaume D'Hondt, Ecole Polytechnique (France), Spring 2017. Project title: "Nonlinear electroelastic deformations of electrets."

Olivier Massicot, Ecole Polytechnique (France), Spring 2016. Project title: "Finite viscoelastic deformations of porous elastomers."

Francisco Damian Aranda Iglesias, Universidad Carlos III de Madrid (Spain), Fall 2015. Project title: "Dynamic cavitation in elastic solids."

Mohamed Ladeb, Ecole Polytechnique (France), Spring 2015. Project title: "Extreme enhancement and reduction of the time-dependent dielectric response of polymer nanoparticulate composites via interphasial charges." Awarded with the Research Internship Award of Ecole Polytechnique 2015.

Victor Lefèvre, Ecole Polytechnique (France), Spring 2012. Project title: "Cavitation in rubber: An elastic instability or a fracture phenomenon?." Awarded with the PSA André Citroën Award of Ecole Polytechnique 2012.

COURSES TAUGHT

College Courses

University of Illinois Urbana-Champaign
CEE 470 Structural Analysis – undergraduate/graduate
CEE 471 Structural Mechanics – graduate
CEE 570 Finite Element Methods – graduate
CEE 597 Theory of Heterogeneous Materials – graduate
CEE 598 Constitutive Modeling of Engineering Materials – graduate
CEE 598 Computational Fracture Mechanics – graduate

École Polytechnique (France)
MEC 431 Mechanics of Solids – undergraduate

State University of New York, Stony Brook
MEC 316 Mechanical Engineering Laboratory – undergraduate, junior level
MEC 363 Mechanics of Solids – undergraduate, sophomore level
MEC 541 Elasticity – graduate
MEC 543 Constitutive Theory – graduate
MEC 552 Mechanics of Composites – graduate
MEC 696 Homogenization Methods for Heterogeneous Materials – graduate

Short Courses

U.S. Association for Computational Mechanics (2026 Online)
The Phase-Field Approach to Brittle Fracture: Theory and Numerical Implementation

U.S. National Congress on Computational Mechanics (2025 Chicago, 2023 Albuquerque)
The Phase-Field Approach to Brittle Fracture: A Tutorial on the Theory and its Numerical Implementation

Thematic School on Soft Materials Models (2025 Tunisia)
Modeling the Mechanics and Physics of Soft Materials from the Bottom Up

CISM | International Center for Mechanics Sciences (2022 Italy)
Electro- and Magneto-Mechanics of Soft Solids: Experiments, Modeling, and Instabilities

PRESENTATIONS

Seminars, Plenary, and Keynote Lectures

S82. 'Nucleation and propagation of brittle fracture as a constrained energy minimization problem,' IUTAM Symposium on New Horizons in Solid Mechanics, IIT Madras, India, January 2027.

S81. 'Nucleation and propagation of brittle fracture as a constrained energy minimization problem,' Department of Mechanical, Materials, and Industrial Engineering, University of Cincinnati, Cincinnati, October 2026.

S80. 'Fracture of cementitious materials: New theory and experiments.,' Materials Seminar Series, University of Illinois Urbana-Champaign, Urbana, October 2026.

S79. 'Nucleation and propagation of brittle fracture as a constrained energy minimization problem,' SEMTA-GAMM Colloquium, Cuenca, Spain, October 2026.

S78. 'Nucleation and propagation of brittle fracture as a constrained energy minimization problem,' Euromech Colloquium, Lisbon, Portugal, September 2026.

S77. 'When, where and why cracks nucleate and propagate in solids: Applications to transportation materials,' Kent Seminar Series, University of Illinois Urbana-Champaign, Rantoul, August 2026.

S76. 'Nine circles of elastic brittle fracture: A series of challenge problems to assess fracture models,' 20th European Mechanics of Materials Conference, Florence, Italy, May 2026.

S75. 'Nucleation and propagation of fracture in elastomers: The when, the where, and the why,' 49th Annual Meeting of The Adhesion Society, Savannah, February 2026.

S74. 'Nucleation and propagation of fracture in viscoelastic elastomers: A complete phase-field theory,' Department of Civil and Environmental Engineering, Vanderbilt University, Nashville, October 2025.

S73. 'Nucleation and propagation of fracture in viscoelastic elastomers: A complete phase-field theory,' 3M Tech Forum, Maplewood, October 2025.

S72. 'The Brazilian fracture test explained, with application to 3D printed mortar,' 8th International Conference on Computational Modeling of Fracture and Failure of Materials and Structures, Porto, Portugal, June 2025.

S71. 'Nucleation and propagation of fracture in viscoelastic elastomers: A complete phase-field theory,' International Conference on Soft Materials Models, Tunis, Tunisia, April 2025.

S70. 'The nonlinear elastic response of bicontinuous rubber blends,' 19th European Mechanics of Materials Conference, Madrid, Spain, May 2024.

S69. 'The magnetoelastic behavior of elastomers filled with ferrofluid inclusions: Theory and

numerical implementation,' Euromech Colloquium on Nonlinear Elasticity: Modeling of Multi-Physics and Applications, Edinburgh, Scotland, March 2024.

S68. 'Elastomers filled with liquid inclusions: Theory, numerical implementation, and some basic results,' Gordon Research Conference, Ventura, January 2024.

S67. 'Towards a complete theory of fracture: The insightful case of rubber,' Fracture as an Emergent Phenomenon, Oberwolfach Research Institute for Mathematics, January 2024.

S66. 'Towards a complete theory of fracture: The special case of rubber,' Laboratory of Soft Matter Science and Engineering, ESPCI, Paris, December 2023.

S65. 'Towards a complete theory of fracture: Past, present, and future,' Department of Mechanical Engineering, University of Houston, Houston, November 2023.

S64. 'Towards a complete theory of fracture,' Department of Aerospace Engineering and Engineering Mechanics, The University of Texas at Austin, Austin, October 2023.

S63. 'The revisited phase-field approach to brittle fracture: Application to indentation and related problems,' 17th U.S. National Congress on Computational Mechanics, Albuquerque, July 2023.

S62. 'Elastomers filled with liquid inclusions: Theory, numerical implementation, and some basic results,' Department of Civil and Environmental Engineering, Northwestern University, Evanston, March 2023.

S61. 'Towards a complete theory of fracture in solids: With applications to the indentation of glass and the stretching of rubber,' Fluid Dynamics & Solid Mechanics, T-3 Group, Theoretical Division, Los Alamos National Laboratory, Los Alamos, January 2023.

S60. 'The fracture of everything (brittle), with applications to the indentation of glass and the stretching of rubber,' Laboratoire de Mécanique et d'Acoustique, Marseille, France, November 2022.

S59. 'Emerging smart materials: From electro/magneto active properties to optimized crack resistance,' CEE Faculty Research Webinar, University of Illinois Urbana-Champaign, Urbana, September 2022.

S58. 'When and how rubber fractures: A cautionary tale of fracture in solids,' Department of Mechanical Engineering and Materials Science, Duke University, Durham, September 2022.

S57. 'Elastomers filled with liquid inclusions: Theory and some basic results,' 11th European Solid Mechanics Conference, Galway, Ireland, July 2022.

S56. 'The poker-chip experiments of Gent and Lindley (1959) explained,' Department of Civil and Systems Engineering, Johns Hopkins University, Baltimore, April 2022.

S55. 'The fracture of everything (brittle), with applications to the indentation of glass and the stretching of rubber,' Institut Jean le Rond ∂'Alembert, Paris, France, March 2022.

S54. 'The poker-chip experiments of Gent and Lindley (1959) explained,' Mechanical Engineering – Engineering Mechanics Department, Michigan Technological University, Houghton, November 2021.

S53. 'The poker-chip experiments of Gent and Lindley (1959) explained,' Laboratoire de Mécanique des Solides, École Polytechnique, Palaiseau, France, October 2021.

S52. 'When and how fracture nucleates and propagates in rubber,' ICTAM 2021 (Virtual), Milan, Italy, August 2021.

S51. 'When and how fracture nucleates and propagates in rubber,' Mechanical and Aerospace Engineering, University of California San Diego, La Jolla, April 2021.

S50. 'When and how fracture nucleates and propagates in rubber,' Department of Mathematical Sciences, Carnegie Mellon University, Pittsburgh, April 2020.

S49. 'A general homogenization solution for the non-linear elastic response of isotropic porous elastomers,' University of Manchester, Manchester, UK, October 2019.

S48. 'The fracture of everything (brittle),' 55th Meeting of the Society for Natural Philosophy, Loyola University Chicago, Chicago, September 2019.

S47. 'Nucleation and propagation of fracture and healing in elastomers: A phase-transition theory & numerical implementation,' Congress on Numerical Methods in Engineering, Guimarães, Portugal, July 2019.

S46. 'Nucleation and propagation of self-healable fracture in rubber,' BIRS Workshop Phase-Field Models of Fracture, Banff, Canada, March 2019.

S45. 'Nucleation and propagation of fracture and healing in elastomers: A phase-transition theory & numerical implementation,' Applied Mathematics Seminar, Courant Institute of Mathematical Sciences, New York University, New York, February 2019.

S44. 'Nucleation and propagation of fracture and healing in elastomers: A phase-transition theory & numerical implementation,' Theoretical and Applied Mechanics Seminar, Northwestern University, Evanston, December 2018.

S43. 'Homogenization of elastic dielectrics containing space charges: A new pathway towards materials with extreme properties (and related problems),' Universitat Politècnica de Catalunya, Barcelona, Spain, November 2018.

S42. 'Nucleation and propagation of fracture and healing in elastomers: A phase-transition theory & numerical implementation,' 13th World Congress in Computational Mechanics, New York, July 2018.

S41. 'Fracture and healing of elastomers: A phase-transition theory and numerical implementation,' Mathematics and Mechanics: Natural Philosophy in the 21st Century, University of Oxford, UK, June 2018.

S40. 'Homogenization of elastic dielectrics containing space charges: A new pathway towards materials with extreme properties (and related problems),' Laboratoire de Mécanique des Solides, École Polytechnique, Palaiseau, France, March 2018.

S39. 'On two novel computational homogenization frameworks in 3D nonlinear electroselastostatics and application to dielectric elastomer composites,' XXIII Congreso de Metodos Numericos y sus Aplicaciones, La Plata, Argentina, November 2017.

S38. 'Fracture and healing of elastomers: A phase transition theory and numerical implementation,' Mechanical & Nuclear Engineering Department, The Pennsylvania State University, State College, October 2017.

S37. 'Fracture and healing of elastomers: A phase transition theory and numerical implementation,' Laboratoire de Mécanique des Solides, École Polytechnique, Palaiseau, France, September 2017.

S36. 'Fracture and healing of elastomers: Theory and numerical implementation,' SES 2017 Young Investigator Lecture, Boston, July 2017.

S35. 'The cautionary tale of cavitation and fracture in rubber: Francfort's conspicuous role,' From Solid Mechanics to Mathematical Analysis: A workshop on the occasion of Gilles Francfort's 60th birthday, Paris, France, June 2017.

S34. 'A WENO finite-difference scheme for a new class of Hamilton-Jacobi equations in nonlinear solid mechanics,' Computational Science and Engineering Lecture Series, University of Illinois Urbana- Champaign, Urbana, March 2017.

S33. 'Damage in elastomers: From cavitation, to micro-cracks, to macro-cracks,' Pierson Graduate Lecture Series, Department of Mechanical and Materials Engineering, University of Nebraska, Lincoln, November 2016.

S32. 'Understanding and designing soft solids from the bottom up: Methods and applications,' School of Aerospace Engineering, Georgia Institute of Technology, Atlanta, October 2015.

S31. 'Cavitation in rubber: An elastic instability or a fracture phenomenon?,' Department of Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, September 2014.

S30. 'Towards a microscopic theory of macroscopic damage in elastomers,' Departamento de Mecánica de Medios Continuos y Teoría de Estructuras, Universidad Carlos III, Madrid, Spain, July 2014.

S29. 'Iterative and variational methods for non-convex homogenization problems,' Department of Mechanical Engineering, University of Houston, Houston, April 2014.

S28. 'Elastic dielectric composites: A microscopic field theory and applications,' Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, September 2013.

S27. 'Cavitation in rubber: An elastic instability or a fracture phenomenon?,' Department of Aerospace, California Institute of Technology, Pasadena, January 2013.

S26. 'Cavitation in rubber: An elastic instability or a fracture phenomenon?,' Department of Mechanical Engineering, Stanford University, Stanford, December 2012.

S25. 'Cavitation in rubber: An elastic instability or a fracture phenomenon?,' Department of Aerospace Engineering and Engineering Mechanics, The University of Texas at Austin, Austin, November 2012.

S24. 'Cavitation instabilities in nonlinear elastic solids: a defect-growth formulation based on iterated homogenization,' Harmonic Analysis and Differential Equations Seminar Series, Department of Mathematics, University of Illinois Urbana-Champaign, Urbana, April 2012.

S23. 'Response of elastomeric solids with pressurized cavities: from defects to closed-cell foams,' Department of Mechanical Science & Engineering, University of Illinois Urbana-Champaign, Urbana, January 2012.

S22. 'Soft solids: Microscopic theories for their analysis and bottom-up design,' Department of Mechanical Engineering & Materials Science, Duke University, Durham, October 2011.

S21. 'Defects and Microstructures in Soft Solids,' Structures Engineering Seminar Series, University of Illinois Urbana-Champaign, Urbana, September 2011.

S20. 'Soft solids: Microscopic theories for their analysis and bottom-up design,' Department of Civil & Environmental Engineering, University of Illinois Urbana-Champaign, Urbana, April 2011.

S19. 'Cavitation instabilities in soft solids: A defect-growth theory and applications to elastomers,' School of Engineering & Applied Science, Harvard University, Cambridge, April 2011.

S18. 'Cavitation in elastomeric solids: A defect-growth theory,' Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, April 2011.

S17. 'Soft solids: microscopic theories for their analysis and bottom-up design,' Sibley School of Mechanical & Aerospace Engineering, Cornell University, Ithaca, March 2011.

S16. 'Cavitation in elastomeric solids: A defect-growth theory,' OCCAM, Mathematical Institute, University of Oxford, Oxford, UK, January 2011.

S15. 'Analytical and numerical solutions for the onset of cavitation in rubber under unequal stresses,' Department of Mechanical Engineering, University of Maryland Baltimore County, Baltimore, October 2010.

S14. 'Cavitation in elastomeric solids,' Laboratoire de Mécanique des Solides, École Polytechnique, Palaiseau, France, May 2010.

S13. 'Fiber-reinforced elastomers: macroscopic properties, microstructure evolution, and stability,' Department of Aerospace Engineering, Iowa State University, Ames, February 2010.

S12. 'Onset of cavitation in hyperelastic solids under arbitrary loading conditions,' Departamento de Ciencia de Materiales, Universidad Politecnica de Madrid, Madrid, Spain, July 2009.

S11. 'Soft heterogeneous materials: macroscopic properties, microstructure evolution, and instabilities,' Mechanical Engineering Department, Johns Hopkins University, Baltimore, April 2009.

S10. 'Onset of cavitation in hyperelastic solids under arbitrary loading conditions,' Aerospace Engineering & Mechanics, University of Minnesota, Twin Cities, February 2009.

S9. 'Onset of cavitation in compressible, isotropic, hyperelastic solids,' Engineering Department, University of Cambridge, Cambridge, UK, December 2008.

S8. 'Polymeric materials: Overall behavior, microstructure evolution, and stability,' Mechanical Engineering, State University of New York at Stony Brook, Stony Brook, May 2007.

S7. 'Polymeric materials: Overall behavior, microstructure evolution, and stability,' Division of Engineering, Brown University, Providence, March 2007.

S6. 'Polymeric materials: Overall behavior, microstructure evolution, and stability,' Mechanical & Aerospace Engineering, University of California San Diego, La Jolla, March 2007.

S5. 'Effective behavior, microstructural evolution, and macroscopic stability in polymeric composites,' Mechanical & Industrial Engineering, University of Illinois Urbana-Champaign, Urbana, May 2006.

S4. 'Effective behavior, microstructural evolution, and macroscopic stability in polymeric composites,' Mechanical Engineering & Applied Mechanics, University of Pennsylvania, Philadelphia, April 2006.

S3. 'Effective behavior, microstructural evolution, and macroscopic stability in polymeric composites,' Aerospace Engineering, University of Michigan, Ann Arbor, March 2006.

S2. 'On the overall behavior, microstructure evolution, and macroscopic stability in elastomeric composites at large deformations,' Laboratoire de Mécanique des Solides, École Polytechnique, Palaiseau, France, October 2005.

S1. 'Microscopic and macroscopic instabilities in finitely deformed laminates,' Graduate Research Seminar, École Polytechnique, Palaiseau, France, October 2005.

Conferences and Workshops

C126. 'When and where do large cracks grow? Griffith energy competition constrained by material strength,' SES 2026, West Lafayette, October 2026.

C125. 'Beam breaker,' 17th World Congress on Computational Mechanics, Munich, Germany, July 2026.

C124. 'Nucleation and propagation of fracture in viscoelastic elastomers: A complete phase-field theory,' 18th U.S. National Congress on Computational Mechanics, Chicago, July 2025.

C123. 'A Griffith description of fracture for non-monotonic loading conditions and its phase-field implementation,' 12th European Solid Mechanics Conference, Lyon, France, July 2025.

C122. 'The single edge notch fracture test for viscoelastic elastomers,' 48th Annual Meeting of the Adhesion Society, New Orleans, February 2025.

C121. 'Is there a universal principle of fracture nucleation and propagation for all solids?,' IUTAM Symposium on Computational Fracture Mechanics in Multi-field Problems, Bad Honnef, Germany, December 2024.

C120. 'Griffith fracture in viscoelastic elastomers done right, with application to the single edge notch fracture test,' Fracture of Soft Materials Symposium, Austin, May 2024.

C119. 'Towards a complete theory of fracture for elastomers,' 47th Annual Meeting of the Adhesion Society, Savannah, February 2024.

C118. 'The poker-chip experiment on natural and synthetic rubbers explained,' MePhy Day: Phase-field models of sharp interfaces in fluids and solids, Paris, December 2023.

C117. 'Elastomers filled with liquid inclusions: Theory, numerical implementation, and some basic results,' Advances in Computational Mechanics, Austin, October 2023.

C116. 'Griffith fracture in viscoelastic elastomers done right,' SES 2023, Minneapolis, October 2023.

C115. 'The effective shear modulus of a random isotropic suspension of monodisperse liquid n-spheres,' SES 2023, Minneapolis, October 2023.

C114. 'The effective shear modulus of a random isotropic suspension of monodisperse rigid n-spheres,' SES 2023, Minneapolis, October 2023.

C113. 'Griffith fracture in viscoelastic elastomers done right,' 7th International Conference on Computational Modeling of Fracture and Failure of Materials and Structures, Prague, Czechia, June 2023.

C112. 'The "pure-shear" fracture test for viscoelastic elastomers and its revelation on Griffith fracture,' International Conference on Plasticity, Damage, and Fracture, Punta Cana, Dominican Republic, January 2023.

C111. 'Homogenization of elastomers filled with liquid inclusions: The small-deformation limit,' SES 2022, College Station, October 2022.

C110. 'The revisited phase-field approach to brittle fracture: Application to indentation problems,' SES 2022, College Station, October 2022.

C109. 'Elastomers filled with liquid inclusions: Theory, numerical implementation, and some basic results,' SIAM Annual Meeting, Pittsburgh, July 2022.

C108. 'The nonlinear viscoelastic response of suspensions of rigid inclusions and vacuous bubbles in rubber,' Soft Matter Symposium, University of Colorado Boulder, Boulder, April 2022.

C107. 'Elastomers filled with electro and magneto-active fluid inclusions: A new paradigm for soft active materials,' SIAM (Virtual) Annual Meeting, Toronto, Canada, July 2020.

C106. 'Revisiting nucleation in the phase-field approach to fracture,' Workshop on Experimental and Computational Fracture Mechanics, Louisiana State University, Baton Rouge, February 2020.

C105. 'Revisiting nucleation in the phase-field approach to fracture,' 18th International Symposium on Plasticity and Its Current Applications, Rivera Maya, Mexico, January 2020.

C104. 'Extreme enhancement of the nonlinear elastic response of elastomer nanoparticulate composites via interphases,' ASME IMECE 2019, Salt Lake City, November 2019.

C103. 'Nucleation in the Phase-Field Approach to Brittle Fracture,' ASME IMECE 2019, Salt Lake City, November 2019.

C102. 'A general result for the magnetoelastic response of isotropic suspensions of iron and ferrofluid particles in rubber,' ASME IMECE 2019, Salt Lake City, November 2019.

C101. 'Revisiting nucleation in the phase-field approach to fracture,' SES 2019, Saint Louis, October 2019.

C100. 'The poker-chip experiments of Gent and Lindley (1959) explained,' 6th International Conference on Computational Modeling of Fracture and Failure of Materials and Structures, Braunschweig, Germany, June 2019.

C99. 'Fracture and healing of elastomers: A phase-transition theory & numerical implementation,' 16th Pan American Congress of Applied Mechanics, Ann Arbor, May 2019.

C98. 'A general result for the magnetoelastic response of isotropic suspensions of iron and ferrofluid particles in rubber, with applications to spherical and cylindrical specimens,' 16th Pan American Congress of Applied Mechanics, Ann Arbor, May 2019.

C97. 'Extreme enhancement of the nonlinear elastic response of elastomer nanoparticulate composites via interphases,' SES 2018, Madrid, Spain, October 2018.

C96. 'The configurational-forces view of fracture and healing in elastomers as a phase transition,' SES 2018, Madrid, Spain, October 2018.

C95. 'Deformable dielectrics containing space charges: A pathway towards materials with extreme electromechanical properties,' IUTAM Symposium on Mechanics of Electro/Magneto-Active Materials & Structures, Beijing, China, August 2018.

C94. 'A general result for the magnetoelastic response of isotropic suspensions of iron and ferrofluid particles in rubber, with applications to spherical and cylindrical specimens,' 10th European Solid Mechanics Conference, Bologna, Italy, July 2018.

C93. 'Nucleation and propagation of fracture and healing in elastomers: A phase-transition theory & numerical implementation,' 6th European Conference on Computational Mechanics, Glasgow, UK, June 2018.

C92. 'Homogenization of elastic dielectric composites containing space charges,' 16th European Mechanics of Materials Conference, Nantes, France, March 2018.

C91. 'Fracture and healing of elastomers: The variational view and numerical implementation,' 14th International Conference on Fracture, Rhodes, Greece, June 2017.

C90. 'A WENO finite-difference scheme for a new class of Hamilton-Jacobi equations in nonlinear solid mechanics,' EMI International Conference 2017, Rio de Janeiro, Brazil, March 2017.

C89. 'The two-potential constitutive framework for finite viscoelasticity: Theoretical aspects and application to elastomers,' ASME IMECE 2016, Phoenix, November 2016.

C88. 'An approximate closed-form homogenization solution for the elastic dielectric response of dielectric elastomer composites,' ASME IMECE 2016, Phoenix, November 2016.

C87. 'The two-potential constitutive framework for finite viscoelasticity: Theoretical aspects and application to elastomers,' SES 2016, College Park, October 2016.

C86. 'An approximate closed-form homogenization solution for the elastic dielectric response of dielectric elastomer composites,' SES 2016, College Park, October 2016.

C85. 'Nonlinear electroelastic deformations of dielectric elastomer composites,' ICTAM 2016, Montreal, Canada, August 2016.

C84. 'A WENO finite-difference scheme for a new class of Hamilton-Jacobi equations in nonlinear electroelastostatics,' Young Researcher Symposium of the Mechanics and Materials Division of the Japan Society of Mechanical Engineers, Stony Brook, August 2016.

C83. 'The two-potential constitutive framework for rubber viscoelasticity,' The 10th International Conference on Mechanics of Time Dependent Materials, Paris, France, May 2016.

C82. 'Hamilton-Jacobi and Eikonal pdes from iterated homogenization methods in finite elasticity,' SIAM Conference on Analysis of PDEs 2015, Scottsdale, December 2015.

C81. 'Filled elastomers: A theory of filler reinforcement based on hydrodynamic and interphasial effects,' ASME IMECE 2015, Houston, November 2015.

C80. 'Cavitation in rubber: The roles of limiting chain extensibility, fracture, and viscoelasticity,' ASME IMECE 2015, Houston, November 2015.

C79. 'Cavitation in rubber: An elastic instability or a fracture phenomenon?,' PACAM XV, Champaign, May 2015.

C78. 'Some simple explicit results for the elastic dielectric properties and stability of layered composites,' ASME IMECE 2014, Montreal, Canada, November 2014.

C77. 'Cavitation in Rubber: An Elastic Instability or a Fracture Phenomenon?,' ASME IMECE 2014, Montreal, Canada, November 2014.

C76. 'Dielectric elastomer composites: The critical role of interphasial phenomena,' ASME IMECE 2014, Montreal, Canada, November 2014.

C75. 'Dielectric elastomer composites: The critical role of interphasial phenomena,' SES 2014, West Lafayette, October 2014.

C74. 'The nonlinear elastic response of suspensions of rigid inclusions in rubber,' 11th World Congress on Computational Mechanics, Barcelona, Spain, July 2014.

C73. 'Dielectric elastomer composites: A general closed-form solution in the small-deformation limit,' IUTAM Symposium on Thermomechanical-Electromagnetic Coupling in Solids, Paris, France, June 2014.

C72. 'Elastic dielectric composites: Theory and application to particle-filled ideal dielectrics,' IUTAM Symposium on Mechanics of Soft Active Materials, Haifa, Israel, May 2014.

C71. 'Elastic dielectric composites: Theory and application to particle-filled ideal dielectrics,' SPIE Smart Structures, San Diego, March 2014.

C70. 'Elastic dielectric composites: Theory and application to particle-filled ideal dielectrics,' ASME IMECE 2013, San Diego, November 2013.

C69. 'Numerical modeling of the nonlinear elastic response of filled elastomers via composite-sphere assemblages,' ASME IMECE 2013, San Diego, November 2013.

C68. 'Closed-form solutions for the overall response of piezoelectric composites with random and periodic particulate microstructures,' ASME IMECE 2013, San Diego, November 2013.

C67. 'The nonlinear elastic response of suspensions of rigid inclusions in rubber,' Advances in Applied Mathematics and Mechanics Workshop, University of Manchester, Manchester, UK, June 2013.

C66. 'The nonlinear elastic response of suspensions of rigid inclusions in rubber,' SIAM Conference on Mathematical Aspects of Materials Science, Philadelphia, June 2013.

C65. 'Cavitation in rubber: An elastic instability or a fracture phenomenon?,' SIAM Conference on Mathematical Aspects of Materials Science, Philadelphia, June 2013.

C64. 'Closed-form solutions for the overall response of piezoelectric composites with random and periodic particulate microstructures,' 13th Pan American Congress of Applied Mechanics, Houston, May 2013.

C63. 'Numerical modeling of the nonlinear elastic response of filled elastomers via composite-sphere assemblages,' 13th Pan American Congress of Applied Mechanics, Houston, May 2013.

C62. 'Elastic dielectric composites: Theory and application to particle-filled ideal dielectrics,' 13th Pan American Congress of Applied Mechanics, Houston, May 2013.

C61. 'Soft dielectric composites: A homogenization theory for their analysis and bottom-up design,' 11eme Colloque National en Calcul des Structures, Giens, France, May 2013.

C60. 'Elastomeric solids with pressurized cavities: From defects to closed-cell foams,' ASME IMECE 2012, Houston, November 2012.

C59. 'Some remarks on the effect of interphases on the mechanical response and stability of fiber-reinforced elastomers,' ASME IMECE 2012, Houston, November 2012.

C58. 'The nonlinear elastic response of suspensions of rigid in rubber,' ASME IMECE 2012, Houston, November 2012.

C57. 'Soft dielectric composites: A novel homogenization method for their analysis and bottom-up design,' SES 2012, Atlanta, October 2012.

C56. 'The nonlinear elastic response of suspensions of rigid inclusions in rubber,' SES 2012, Atlanta, October 2012.

C55. 'The nonlinear elastic response of suspensions of rigid inclusions in rubber,' International Workshop on Mathematical and Mechanical Modelling for Materials, Hong Kong, August 2012.

C54. 'Microscopic and macroscopic instabilities in particle-reinforced elastomers,' ICTAM 2012, Beijing, China, August 2012.

C53. 'Nonlinear iterated homogenization methods in finite deformations,' 12th Pan American Congress of Applied Mechanics, Port of Spain, Trinidad, January 2012.

C52. 'Cavitation instabilities in soft solids: A defect-growth theory and applications to elastomers,' 12th Pan American Congress of Applied Mechanics, Port of Spain, Trinidad, January 2012.

C51. 'Defects in Soft Solids,' 50th Year Anniversary of the Laboratoire de Mécanique des Solides, École Polytechnique, Paris, France, December 2011.

C50. 'Electromechanical behavior of soft electrostrictive composites: A novel microscopic theory for their analysis and bottom-up design,' ASME IMECE 2011, Denver, November 2011.

C49. 'A new nonlinear elastic model for soft solids,' SES 2011, Evanston, October 2011.

C48. 'On the effect of interphases on the mechanical response and stability of fiber-reinforced elastomers,' SES 2011, Evanston, October 2011.

C47. 'Cavitation instabilities in soft solids: A defect-growth theory and applications to elastomers,' Future Directions in Mechanics Research, NSF Workshop and Symposium in Honor of L.B. Freund, Providence, June 2011.

C46. 'Constitutive response of porous elastomers,' IUTAM Symposium 2011: Mechanics of Liquid and Solid Foams, Austin, May 2011.

C45. 'Cavitation in elastomeric solids: A defect-growth theory,' Symposium in Honor of Rohan Abeyaratne, 2010 recipient of the Drucker medal, ASME IMECE 2010, Vancouver, Canada, November 2010.

C44. 'On microstructure evolution in fiber-reinforced elastomers and implications for their mechanical response and stability,' ASME IMECE 2010, Vancouver, Canada, November 2010.

C43. 'Analytical and numerical solutions for the onset of cavitation in rubber under general loading conditions,' ASME IMECE 2010, Vancouver, Canada, November 2010.

C42. 'Microscopic and macroscopic instabilities in particle-reinforced elastomers,' SES 2010, Ames, October 2010.

C41. 'On microstructure evolution in fiber-reinforced elastomers and implications for their mechanical response and stability,' Symposium in Honor of Roger Fosdick, 2010 recipient of the Engineering Science medal, SES 2010, Ames, October 2010.

C40. 'Analytical and numerical solutions for the onset of cavitation in rubber under general loading conditions,' Symposium in Honor of Ray Ogden, 2010 recipient of the Prager medal, SES 2010, Ames, October 2010.

C39. 'Cavitation in elastomeric solids: A defect-growth theory,' Symposium in Honor of Nguyen Quoc Son, Institut Henri-Poincare, Paris, France, September 2010.

C38. 'Failure surfaces for fiber-reinforced elastomers under general 3D loading conditions,' 16th USNCTAM, State College, June 2010.

C37. 'An iterated homogenization method to study cavitation in hyperelastic solids,' 16th USNCTAM, State College, June 2010.

C36. 'Thermoplastic elastomers: multiscale modeling, microstructure evolution, and macroscopic instabilities,' 16th USNCTAM, State College, June 2010.

C35. 'Iterated homogenization methods in finite elasticity and applications,' Workshop on Variational Problems in Solid Mechanics, University of Pennsylvania, Philadelphia, May 2010.

C34. 'An iterated homogenization method to study cavitation in hyperelastic solids,' SIAM 2010, Philadelphia, May 2010.

C33. 'Thermoplastic elastomers: multiscale modeling, microstructure evolution and macroscopic instabilities,' IV European Conference in Computational Mechanics, Paris, France, May 2010.

C32. 'Cavitation in soft solids,' Young Researcher Symposium of the Mechanics and Materials Division of the Japan Society of Mechanical Engineers, California Institute of Technology, Pasadena, March 2010.

C31. 'Macroscopic instabilities in fiber-reinforced rubbers at finite strain,' ASME IMECE 2009, Orlando, November 2009.

C30. 'Onset of cavitation in hyperelastic solids under arbitrary 3D loading conditions,' ASME IMECE 2009, Orlando, November 2009.

C29. 'An exact result for the macroscopic response of porous Neo-Hookean solids,' ASME IMECE 2009, Orlando, November 2009.

C28. 'Mechanics of near-single-crystal thermoplastic elastomers,' ASME IMECE 2009, Orlando, November 2009.

C27. 'Onset of cavitation in hyperelastic solids under arbitrary loading conditions,' EUROMECH Solids Mechanics Conference 2009, Lisbon, Portugal, September 2009.

C26. 'A new constitutive theory for fiber-reinforced rubberlike materials,' ASCE-SES-ASME 2009, Blacksburg, June 2009.

C25. 'Mechanics of near-single-crystal thermoplastic elastomers,' ASCE-SES-ASME 2009, Blacksburg, June 2009.

C24. 'Onset of cavitation in hyperelastic solids under arbitrary 3D loading conditions,' ASCE-SES-ASME 2009, Blacksburg, 2009.

C23. 'An exact result for the macroscopic response of porous Neo-Hookean solids,' ASCE-SES-ASME 2009, Blacksburg, 2009.

C22. 'A new hyperelastic model for rubber elastic materials,' ASCE-SES-ASME 2009, Blacksburg, June 2009.

C21. 'Near-single-crystal thermoplastic elastomers: Homogenization-based constitutive modeling and experiments,' ASME IMECE 2008, Boston, November 2008.

C20. 'Onset of cavitation in compressible, isotropic, hyperelastic solids,' ASME IMECE 2008, Boston, November 2008.

C19. 'Microstructure evolution in hyperelastic laminates and implications for overall behavior and macroscopic stability,' SES 2008, Urbana-Champaign, October 2008.

C18. 'Constitutive models for fiber-reinforced rubbers: effective response and macroscopic instabilities,' SES 2008, Urbana-Champaign, October 2008.

C17. 'Onset of cavitation in compressible, isotropic, hyperelastic solids,' SES 2008, Urbana-Champaign, October 2008.

C16. 'Onset of cavitation in compressible, isotropic, hyperelastic solids,' ICTAM 2008, Adelaide, Australia, August 2008.

C15. 'Onset of cavitation in compressible, isotropic, hyperelastic solids,' First American Academy of Mechanics Conference, New Orleans, June 2008.

C14. 'Onset of cavitation in compressible, isotropic, hyperelastic solids,' SIAM 2008, Philadelphia, May 2008.

C13. 'Instabilities in lamellar block copolymer films,' ASME IMECE 2007, Seattle, November 2007.

C12. 'Homogenization estimates and macroscopic instabilities of fiber-reinforced elastomers with periodic microstructures,' ASME IMECE 2007, Seattle, November 2007.

C11. 'Multiscale modeling of oriented thermoplastic elastomers with lamellar morphology,' SES 2007, College Station, October 2007.

C10. 'Constitutive models for porous elastomers and implications for macrostability,' SES 2007, College Station, October 2007.

C9. 'Multiscale modeling of thermoplastic elastomers with lamellar morphology,' International Conference on Thermo-Mechanical Modeling of Solids, Palaiseau, France, July 2007.

C8. 'Constitutive models for porous elastomers and implications for macro-stability,' International Conference on Thermo-Mechanical Modeling of Solids, Palaiseau, France, July 2007.

C7. 'Homogenization-based constitutive modeling of fiber-reinforced elastomers,' International Workshop on the Interplay between Mechanics and Biology on Multiple Length Scales, Castro Urdiales, Spain, July 2007.

C6. 'Effective behavior, microstructure evolution, and macroscopic instabilities in reinforced elastomers,' 15th USNCTAM, Boulder, June 2006.

C5. 'Homogenization-based constitutive models for fiber-reinforced elastomers and implications for loss of ellipticity,' ASME IMECE 2005, Orlando, November 2005.

C4. 'Homogenization-based constitutive models for fiber-reinforced elastomers and implications for loss of ellipticity,' Primer Congreso Conjunto de Matematicas RSME-SCM-SEIO-SEMA, Valencia, Spain, February 2005.

C3. 'Second-order estimates for the mechanical behavior of particle-reinforced elastomers under large deformations,' ASME IMECE 2003, Washington DC, November 2003.

C2. 'Homogenization estimates for particle-reinforced elastomers,' NSF-CNRS Meeting, Marseille, France, June 2003.

C1. 'Three-dimensional, finite deformation, constitutive model for predominantly viscoelastic soft polymers,' 9th International Symposium on Plasticity and Its Current Applications, Aruba, January 2002.

LEADERSHIP AND PROFESSIONAL SERVICES

Departmental and University

University of Illinois Urbana-Champaign

- CEE Awards Committee: Member, 2026–present
- CEE Structural Engineering Area: Chair 2025–present
- CEE Department Head Search Committee, 2025
- CEE Promotion and Tenure Committee: Chair, 2024; Member, 2023–2026

- Grainger College of Engineering Dean's Five Year Review Committee, 2023
- Engineering Faculty Leadership Forum Class of 2020/2021
- CEE Faculty Search Committee, 2012, 2013, 2014, 2015, 2016, 2017, 2022
- CEE Graduate Student Recruiting Committee, 2011 – present
- Engineering – Mathematics Liaison Committee, 2015 – present
- Engineering – Computer Science Liaison Committee, 2015 – present

State University of New York, Stony Brook

- Co-director of the Long Island Junior Science and Humanities Symposium, 2009 – 2012

Professional Societies

- ASME (American Society of Mechanical Engineers): Member from 2003 to present; Secretary of the Committee of "Mechanics of Soft Materials',' 2014; Chair of the Committee of "Mechanics of Soft Materials',' 2015
- EUROMECH (European Mechanics Society): Member from 2009 to present
- SES (Society of Engineering Science): Member from 2007 to present; Director of the SES Board from 2014 to 2016 and from 2020 to 2023.
- SIAM (Society for Industrial and Applied Mathematics): Member from 2008 to present
- SNP (Society for Natural Philosophy): Member from 2017 to present; Member of the Governing Committee from 2022 to present.

Journal Referee

Acta Biomaterialia; Acta Mechanica; Advanced Modeling and Simulation in Engineering Science; Applied Mechanics Reviews; Biomechanics and Modeling in Mechanobiology; Composites Science and Technology; Computer Methods in Applied Mechanics and Engineering; Comptes Rendus Mécanique; Continuum Mechanics and Thermodynamics; Finite Elements in Analysis and Design; European Journal of Mechanics A/Solids; Extreme Mechanics Letters; International Journal of Fracture; International Journal of Non-Linear Mechanics; International Journal for Numerical Methods in Engineering; International Journal of Solids and Structures; Journal of the Acoustical Society of America; Journal of Applied Mechanics; Journal of Applied Physics; Journal of Composite Materials; Journal of Computational and Applied Mathematics; Journal of Elasticity; Journal of Engineering Mathematics; Journal of Engineering Materials and Technology; Journal of Materials Research; Journal of Mathematical Analysis and Applications; Journal of Mechanics of Materials and Structures; Journal of the Mechanical Behavior of Biomedical Materials; Journal of the Mechanics and Physics of Solids; Journal of Physics D: Applied Physics; Journal of Physics: Condensed Matter; Journal of Tribology; Mathematics and Mechanics of Solids; Mathematical Problems in Engineering; Meccanica; Mechanics of Materials; Mechanics Research Communications; Modelling and Simulation in Materials Science and Engineering; Proceedings of the National Academy of Sciences of the United States of America; Proceedings of the Royal Society A; Physical Chemistry Chemical Physics; Science China Mathematics; SIAM Journal of Applied Mathematics; Smart Materials and Structures; The IMA Journal of Applied Mathematics

Conference and Workshop Organizer

- The XV Pan-American Congress of Applied Mechanics, 2015, Champaign, IL

Symposium Organizer

- "Sharp and Regularized Models of Nucleation and Propagation of Fracture in Solids Under Quasi-Static and Dynamic Loading Conditions" in USNCCM 2027, Pasadena, CA
- "Phase-Field Models of Nucleation and Propagation of Fracture in Solids Under Quasi-Static and Dynamic Loading Conditions" in USNCCM 2025, Chicago, IL
- "Phase-Field Models of Fracture for Solids, Hard and Soft" in SES 2023, Minneapolis, MN
- "Mechanics and Physics of Soft Materials" in SES 2023, Minneapolis, MN
- "Phase-Field Models of Fracture for Solids, Hard and Soft" in SES 2022, College Station, TX
- "Mechanics and Physics of Soft Materials" in SES 2022, College Station, TX
- "Instability in Solids and Structures," in USNCTAM 2022, Austin, TX
- "Fracture and Damage of Soft Materials" in USNCTAM 2022, Austin, TX
- "Prager Medalist Symposium" in SES 2020, Virtual Meeting
- "NSF-SIAM Mini-Symposium on the NSF Program Designing Materials to Revolutionize and Engineer our Future" in SIAM/CAIMS (Virtual) Annual Meeting 2020
- "Regularized Models of Fracture in Hard and Soft Solids" in SES 2019, Saint Louis, MO
- "Mechanics and Physics of Soft Materials" in SES 2019, Saint Louis, MO
- "Mechanics and Physics of Soft Materials" in SES 2018, Madrid, Spain
- "Mechanics and Physics of Soft Materials" in USNCTAM 2018, Evanston, IL
- "Failure and Damage in Soft Materials: From Cavitation to Cracking" in SES 2017, Boston, MA
- "Mechanics of Soft and Biological Materials and Flexible Structures" in SES 2017, Boston, MA
- "Instabilities in Soft Matter Solids and Structures" in ASME IMECE 2016, Phoenix, AZ
- "Mechanics and Physics of Soft Materials" in SES 2016, College Park, MD
- "Mechanics of Soft Materials" in ASME IMECE 2015, Houston, TX
- "Mechanics and Physics of Soft Materials" in SES 2015, College Station, TX
- "Homogenization Methods in Solid Mechanics" in PANACM 2015, Buenos Aires, Argentina
- "Mechanics of Soft Materials" in ASME IMECE 2014, Montreal, Canada
- "Soft Materials and Structures" in SES 2014, West Lafayette, IN
- "Mechanics and Physics of Soft Matter Materials" in USNCTAM 2014, East Lansing, MI
- "Instabilities in Solids and Structures" in USNCTAM 2014, East Lansing, MI
- "Instabilities in Solids Across Length Scales" in 11th World Congress on Computational Mechanics 2014, Barcelona, Spain
- "Mechanics of Soft Materials" in ASME IMECE 2013, San Diego, CA

- "Fracture and Instabilities in Soft Materials" in the 13th International Conference on Fracture 2013, Beijing, China
- "Geometrical Instabilities in Soft Materials" in SIAM Mathematical Aspects of Materials Science 2013, Philadelphia, PA
- "Mechanics and Physics of Soft Matter" in PACAM 2013, Houston, TX
- "Instabilities in Solids and Biological Structures" in ASME IMECE 2012, Houston, TX
- "Soft Active Materials" in SES 2012, Atlanta, GA
- "Multiscale Methods for Constitutive Modeling of Materials" in PACAM 2012, Port of Spain, Trinidad and Tobago
- "Mechanics of Soft Materials" in ASME IMECE 2010, Vancouver, Canada
- "Instabilities in Solids" in SES 2010, Ames, IA
- "Micromechanical Instabilities in Solids" in SIAM Mathematical Aspects of Materials Science 2010, Philadelphia, PA
- "Macroscopic Properties and Instabilities in Heterogeneous Materials Systems" in USNCTAM 2010, State College, PA
- "Mechanics of Soft Matter and Soft Intelligent Materials" in ASCE-ASME-SES 2009, Blacksburg, VA
- "Mechanics of Soft Matter, Biomaterials, and Biological Systems" in ASME IMECE 2008, Boston, MA