

Oscar Lopez-Pamies

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PERSONAL DATA

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

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, USA
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, USA

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, USA

LANGUAGES

Fluent in English, French, and Spanish

POSITIONS HELD

Assistant Professor, Department of Mechanical Engineering, SUNY Stony Brook,
September 2007 — present

Research Scholar, Department of Mechanical Engineering and Applied Mechanics,
University of Pennsylvania, January 2007 — August 2007

Postdoctoral Researcher, Laboratoire de Mécanique des Solides, École Polytechnique,
September 2006 — September 2007

VISITING POSITIONS

Visiting Researcher, Laboratoire de Mécanique des Solides, École Polytechnique, July
2008 — August 2008

COURSES TAUGHT

State University of New York, Stony Brook

MEC 316 Mechanical Engineering Laboratory – undergraduate, junior level
MEC 363 Mechanics of Solids – undergraduate, sophomore level
MEC 543 Constitutive Theory – graduate
MEC 552 Mechanics of Composites – graduate
MEC 696 Homogenization Methods for Heterogeneous Materials – graduate

ACADEMIC HONORS

Best Oral Presentation Award by a Young Researcher (under age 35) in the 7th EUROMECH Solid Mechanics Conference, 2009

Thesis Award of École Polytechnique, 2007

Thesis Award Finalist of ParisTech (top 9 among 514 theses), 2007

Outstanding Senior in Mechanical Engineering UMBC, 2000

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

Member of Pi Mu Epsilon Mathematics Honor Society, 1998 — present

PROFESSIONAL SERVICES

Departmental and University Services

Co-director of the Long Island Junior Science and Humanities Symposium 2009 — present

Advisor for the SUNY-Stony Brook chapter of the NSBE, September 2008 — present

Advisor for the SUNY-Stony Brook Solar Boat Team, September 2008 — present

Judge for the SBPLI FIRST robotics competition, 2007 — 2008

Undergraduate program committee member, September 2007 — present

Department seminar coordinator, September 2007 — September 2008

Symposium Organizer

“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

Society Memberships

ASME (American Society of Mechanical Engineers)

EUROMECH (European Mechanics Society)

SES (Society of Engineering Science)

SIAM (Society for Industrial and Applied Mathematics)

Journal Referee

Composites Science and Technology · International Journal of Non-Linear Mechanics · International Journal of Solids and Structures · Journal of Applied Mechanics · Journal of Elasticity · Journal of Engineering Mathematics · Journal of the Mechanics and Physics of Solids · Journal of Physics D: Applied Physics · Mathematical Problems in Engineering · Mechanics Research Communications · Modelling and Simulation in Materials Science and Engineering · Smart Materials and Structures

PUBLICATIONS

Publications in Refereed Journals

- J21. **Lopez-Pamies, O.**, Idiart, M.I. 2009. Fiber-reinforced hyperelastic solids: A realizable homogenization constitutive theory. *Journal of Engineering Mathematics*. Under review.
- J20. **Lopez-Pamies, O.** 2009. A new I_1 -based hyperelastic model for rubber elastic materials. *Comptes Rendus Mecanique*. Under review.
- J19. Racherla, V., **Lopez-Pamies, O.**, Ponte Castañeda, P. 2009. Macroscopic response and onset of instabilities in lamellar nanostructured elastomers with “oriented” and “unoriented” polydomain microstructures. *Mechanics of Materials*. Under review.
- J18. **Lopez-Pamies, O.** 2010. An exact result for the macroscopic response of particle-reinforced Neo-Hookean solids. *Journal of Applied Mechanics* 77, 1-5.
- 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.

Publications in Conference Proceedings

- 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.

Books and Book Chapters

- B2. **Lopez-Pamies, O.**, “Elastomeric composites: A nonlinear homogenization theory for macroscopic properties, microstructure evolution, and instabilities.” LAP Lambert Academic Publishing. ISBN 978-3-8383-0155-6.
- B1. “Plasticity, damage and fracture at macro, micro, and nano scales.” *Proceedings of Plasticity 2002: The Ninth International Symposium on Plasticity and Its Current Applications*. Editors: A.S. Khan and **O. Lopez-Pamies**.

PRESENTATIONS AND SEMINARS

Conferences and Workshops

- C31. ‘Macroscopic instabilities in fiber-reinforced rubbers at finite strain’, ASME IMECE 2009, Orlando, November 2009 (planned).
- C30. ‘Onset of cavitation in hyperelastic solids under arbitrary 3D loading conditions’, ASME IMECE 2009, Orlando, November 2009 (planned).
- C29. ‘An exact result for the macroscopic response of porous Neo-Hookean solids’, ASME IMECE 2009, Orlando, November 2009 (planned).
- C28. ‘Mechanics of near-single-crystal thermoplastic elastomers’, ASME IMECE 2009, Orlando, November 2009 (planned).
- C27. ‘Onset of cavitation in hyperelastic solids under arbitrary loading conditions’, EUROMECH Solids Mechanics Conference 2009, Lisbon, 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 USNCTA, 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.

Invited Seminars

- S12. 'Onset of cavitation in hyperelastic solids under arbitrary loading conditions', Departamento de Ciencia de Materiales, Universidad Politecnica de Madrid, Madrid, 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 and 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 and Aerospace Engineering, University of California San Diego, La Jolla, March 2007.
- S5. 'Effective behavior, microstructural evolution, and macroscopic stability in polymeric composites', Mechanical and Industrial Engineering, University of Illinois at Urbana Champaign, Urbana, May 2006.
- S4. 'Effective behavior, microstructural evolution, and macroscopic stability in polymeric composites', Mechanical Engineering and 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.