

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 363 Mechanics of Solids – undergraduate, sophomore level
MEC 543 Constitutive Theory – graduate

ACADEMIC HONORS

Thesis Award of École Polytechnique, 2007
Thesis Award Finalist of ParisTech (top 9 among 514 theses), 2007
First Team Academic All American, 1999
Second Team Academic All American, 2000
Outstanding Senior in Mechanical Engineering UMBC, 2000
Student-Athlete of the Year, 2000
Member of Pi Mu Epsilon Mathematics Honor Society
Member of the UMBC Math Team, 1998-2001

PROFESSIONAL SERVICES

Departmental and University Services

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 — present
Undergraduate program committee member, September 2007 — present
Department seminar coordinator, September 2007 — September 2008

Symposium Organizer

“Mechanics of Soft Matter, Biomaterials, and Biological Systems” in ASME IMECE
2008, Boston, MA
“Mechanics of Soft Matter and Soft Intelligent Materials” in SES 2009, Blacksburg, VA

Society Memberships

ASME (American Society of Mechanical Engineers)
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 the Mechanics and Physics of Solids
Mechanics Research Communications
Modelling and Simulation in Materials Science and Engineering
Smart Materials and Structures

PUBLICATIONS

Publications in Refereed Journals

- J1. **Lopez-Pamies, O.** 2008. A new hyperelastic model for rubber elastic materials. *Rubber Chemistry and Technology*. Submitted for publication.

- J2. **Lopez-Pamies, O.** 2008. Onset of cavitation in compressible, isotropic, hyperelastic solids. *Journal of Elasticity*. Accepted for publication.
- J3. **Lopez-Pamies, O.**, Ponte Castañeda, P. 2008. Microstructure evolution in hyperelastic laminates and implications for overall behavior and macroscopic stability. *Mechanics of Materials*. Accepted for publication.
- J4. Agoras, M., **Lopez-Pamies, O.**, Ponte Castañeda, P. 2008. A general hyperelastic model for incompressible fiber-reinforced elastomers. *Journal of the Mechanics and Physics of Solids*. Accepted for publication.
- J5. **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.
- J6. **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.
- J7. **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.
- J8. 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.
- J9. 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.
- J10. **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.
- J11. **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.
- J12. 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.
- J13. **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.
- J14. **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.
- J15. **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.
- J16. 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 Preparation

- **Lopez-Pamies, O.** 2008. Extreme macroscopic stiffness induced by microscopic instabilities in elastomeric composites. In preparation.
- **Lopez-Pamies, O.,** Idiart, M.I. 2008. An exact result for the macroscopic behavior of porous Neo-Hookean materials. In preparation.
- Agoras, M., **Lopez-Pamies, O.,** Ponte Castañeda, P. 2008. Onset of macroscopic instabilities in fiber-reinforced nonlinearly elastic materials. In preparation.
- **Lopez-Pamies, O.,** Racherla, V., Garcia, R., Chabert, E., Cavallé, J.-Y., Ponte Castañeda, P. 2008. Mechanics of oriented block copolymers. In preparation.

Publications in Conference Proceedings

- P1. **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.
- P2. **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.

Other Publications

“Plasticity, damage and fracture at macro, micro, and nano scales.” *Proceedings of Plasticity '02: The Ninth International Symposium on Plasticity and Its Current Applications*. Editors: A.S. Khan and **O. Lopez-Pamies**.

PRESENTATIONS AND SEMINARS

Conferences and Workshops

- C1. ‘Microscopic and macroscopic instabilities in particle-reinforced elastomers’, ASME IMECE 2008, Boston, November 2008.
- C2. ‘Near-single-crystal thermoplastic elastomers: Homogenization-based constitutive modeling and experiments’, ASME IMECE 2008, Boston, November 2008.
- C3. ‘Onset of cavitation in compressible, isotropic, hyperelastic solids’, ASME IMECE 2008, Boston, November 2008.
- C4. ‘Microstructure evolution in hyperelastic laminates and implications for overall behavior and macroscopic stability’, SES 2008, Urbana-Champaign, October 2008.
- C5. ‘Constitutive models for fiber-reinforced rubbers: effective response and macroscopic instabilities’, SES 2008, Urbana-Champaign, October 2008.
- C6. ‘Onset of cavitation in compressible, isotropic, hyperelastic solids’, SES 2008, Urbana-Champaign, October 2008.
- C7. ‘Onset of cavitation in compressible, isotropic, hyperelastic solids’, ICTAM 2008, Adelaide, Australia, August 2008.

- C8. 'Onset of cavitation in compressible, isotropic, hyperelastic solids', First American Academy of Mechanics Conference, New Orleans, June 2008.
- C9. 'Onset of cavitation in compressible, isotropic, hyperelastic solids', SIAM 2008, Philadelphia, May 2008.
- C10. 'Instabilities in lamellar block copolymer films', ASME IMECE 2007, Seattle, November 2007.
- C11. 'Homogenization estimates and macroscopic instabilities of fiber-reinforced elastomers with periodic microstructures', ASME IMECE 2007, Seattle, November 2007.
- C12. 'Multiscale modeling of oriented thermoplastic elastomers with lamellar morphology', SES 2007, College Station, October 2007.
- C13. 'Constitutive models for porous elastomers and implications for macrostability', SES 2007, College Station, October 2007.
- C14. 'Multiscale modeling of thermoplastic elastomers with lamellar morphology', International Conference on Thermo-Mechanical Modeling of Solids, Palaiseau, France, July 2007.
- C15. 'Constitutive models for porous elastomers and implications for macro-stability', International Conference on Thermo-Mechanical Modeling of Solids, Palaiseau, France, July 2007.
- C16. '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.
- C17. 'Effective behavior, microstructure evolution, and macroscopic instabilities in reinforced elastomers', 15th USNCTA, Boulder, June 2006.
- C18. 'Homogenization-based constitutive models for fiber-reinforced elastomers and implications for loss of ellipticity', ASME IMECE 2005, Orlando, November 2005.
- C19. '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.
- C20. 'Second-order estimates for the mechanical behavior of particle-reinforced elastomers under large deformations', ASME IMECE 2003, Washington DC, November 2003.
- C21. 'Homogenization estimates for particle-reinforced elastomers', NSF-CNRS Meeting, Marseille, France, June 2003.
- C22. '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

- S1. 'Onset of cavitation in compressible, isotropic, hyperelastic solids', Aerospace Engineering and Mechanics, University of Minnesota, Twin Cities, February 2009 (planned).
- S2. 'Onset of cavitation in compressible, isotropic, hyperelastic solids', Engineering Department, University of Cambridge, Cambridge, UK, December 2008 (planned).
- S3. 'Polymeric materials: Overall behavior, microstructure evolution, and stability', Mechanical Engineering, State University of New York at Stony Brook, Stony Brook, May 2007.
- S4. 'Polymeric materials: Overall behavior, microstructure evolution, and stability', Division of Engineering, Brown University, Providence, March 2007.

- S5. 'Polymeric materials: Overall behavior, microstructure evolution, and stability', Mechanical and Aerospace Engineering, University of California San Diego, La Jolla, March 2007.
- S6. 'Effective behavior, microstructural evolution, and macroscopic stability in polymeric composites', Mechanical and Industrial Engineering, University of Illinois at Urbana Champaign, Urbana, May 2006.
- S7. 'Effective behavior, microstructural evolution, and macroscopic stability in polymeric composites', Mechanical Engineering and Applied Mechanics, University of Pennsylvania, Philadelphia, April 2006.
- S8. 'Effective behavior, microstructural evolution, and macroscopic stability in polymeric composites', Aerospace Engineering, University of Michigan, Ann Arbor, March 2006.
- S9. '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.
- S10. 'Microscopic and macroscopic instabilities in finitely deformed laminates', Graduate Research Seminar, École Polytechnique, Palaiseau, France, October 2005.