

Nicoli M. Ames, Ph.D.
Associate

Professional Profile

Dr. Nicoli M. Ames is an Associate in Exponent's Mechanical Engineering and Materials/Metallurgy practice. Dr. Ames specializes in polymer mechanics, specifically with regards to constitutive model development, experimental thermal-mechanical material characterization, and finite element analysis (FEA), including fully-coupled thermal-stress analysis. She is familiar with various polymer forming techniques; her doctoral research at the Massachusetts Institute of Technology focused on experimental and numerical analysis of polymer micro-hot-embossing for use in mass production of microfluidic devices. Her earlier graduate work focused on experimental and numerical analysis of polymer micro-indentation.

Prior to joining Exponent, Dr. Ames was a staff member at Sandia National Laboratories in the Multi-Physics Modeling and Simulation department. During her time there, she performed thermal analysis on an existing weapon system and investigated the performance of mechanical contact algorithms in a variety of FEA codes.

Academic Credentials and Professional Honors

Ph.D., Mechanical Engineering, Massachusetts Institute of Technology (MIT), 2007
S.M., Mechanical Engineering, Massachusetts Institute of Technology (MIT), 2003
S.B., Mechanical Engineering, Massachusetts Institute of Technology (MIT), 2000

William L Stewart Jr. Award for Outstanding Contributions to Extracurricular Activities, 2006;
Mechanical Engineering Department Service Award, 2006; Meredith Kamm Memorial Award
for Outstanding Mechanical Engineering Graduate Student, 2003; MIT Rosenblith Fellowship,
2000–2001; Luis de Florez Award for Outstanding Creativity, Ingenuity, and Originality in the
Design and Construction of an Undergraduate Thesis, 2000

Publications

Anand L, Ames NA, Srivastava V, Chester SA. A thermo-mechanically coupled theory for large deformations of amorphous polymers. Part I: Formulation. *Int J Plast* 2009, in press. EPub ahead of print: doi:10.1016/j.ijplas.2008.11.004.

Ames NM, Srivastava V, Chester SA, Anand L. A thermo-mechanically coupled theory for large deformations of amorphous polymers. Part II: Applications. *Int J Plast* 2009, in press. EPub ahead of print: doi:10.1016/j.ijplas.2008.11.005.

Anand L, Ames NM. On modeling the micro-indentation response of an amorphous polymer. *Int J Plast* 2006; 22(6):1123–1170. <http://dx.doi.org/10.1016/j.ijplas.2005.07.006>.

Presentations

Ames NM, Anand L. Modeling and simulation of the hot-embossing process on amorphous polymers. Proceedings, 6th International Conference on Mechanics of Time-Dependent Materials, April 2008.

Ames NM, Srivastava V, Lele SP, Anand L. Modeling and simulation of the hot-embossing process for manufacture of microfluidic devices from amorphous polymers. Proceedings, 1st International Conference on Micromanufacturing, September 2006.

Professional Affiliations

- American Society of Mechanical Engineers (member)