

Prof. Anish Tuteja
2046 H.H. Dow Building, 2300 Hayward Street, University of Michigan
Ann Arbor, MI, 48108. Ph. (734) 615-2972 Email: atuteja@umich.edu

Employment:

Assistant Professor of Materials Science and Engineering: (Sept. 1, 2009 – Present), Department of Materials Science and Engineering, University of Michigan, Ann Arbor, MI.

Education:

Postdoctoral Research Associate: (August 2006 – June 2009), Department of Chemical Engineering, Massachusetts Institute of Technology.

Research Advisors: Prof. Robert E. Cohen and Prof. Gareth H. McKinley.

Doctor of Philosophy (Ph.D.): Chemical Engineering and Materials Science, Michigan State University, East Lansing, Michigan. (July 2006)

Thesis: “Effects of nanoscale inclusions on the properties and dynamics of polymer melts”.

Research Advisor: Prof. Michael E. Mackay.

Bachelor of Engineering (B.E.): Chemical Engineering, Panjab University (India). (May 2001).

Peer reviewed publications:

14. “Scale Dependence of Omniphobic Mesh Surfaces”, Shreerang S. Chhatre, Wonjae Choi, **Anish Tuteja**, Kyoo-Chul (Kenneth) Park, Joseph M. Mabry, Gareth H. McKinley and Robert E. Cohen, *Langmuir*, 2010, 26(6), 4027–4035.

13. “Thermal Annealing Treatment to Achieve Switchable and Reversible Oleophobicity on Fabrics”, Shreerang Chhatre, **Anish Tuteja**, Wonjae Choi, Joseph M. Mabry, Gareth H. McKinley, Robert E. Cohen, *Langmuir*, 2009, 25 (23), 13625-13632.

12. “A Modified Cassie-Baxter Relationship to Explain Contact Angle Hysteresis and Anisotropy on Non-Wetting Textured Surfaces” Wonjae Choi,* **Anish Tuteja**,* Robert E. Cohen, Gareth H. McKinley, *Journal of Colloids and Interfacial Science* 2009, 339, 208-216 (* indicates equal contribution).

11. “Fabrics with tunable oleophobicity”, Wonjae Choi,* **Anish Tuteja**,* Shreerang Chhatre, Joseph M. Mabry, Robert E. Cohen, Gareth H. McKinley, *Advanced Materials*, vol. 21, issue 21, 2190-2195 (* indicates equal contribution).

10. “Robust omniphobic surfaces”, **Anish Tuteja**,* Wonjae Choi,* Joseph M. Mabry, Robert E. Cohen, Gareth H. McKinley, *Proceedings of the National Academy of Sciences*, November 25, 2008, vol. 105, no. 47, 18200-18205 (* indicates equal contribution).

This work was highlighted on Nature Chemistry, BBC Radio, ABC News, Scientific American, Science News, New Scientist, Discover magazine, Chemistry World, Technology Review, German

Public Radio, MRS - Materials News, Air Force News, Yahoo! India News, Times of India, MIT – Department of Chemical Engineering Homepage and News, Institute of Nanotechnology (UK), Chosun Daily (South Korea) and numerous other magazines, newspapers and websites.
Times Cited: 15.

9. “Design parameters for superhydrophobicity and superoleophobicity”, **Anish Tuteja**, Wonjae Choi, Gareth H. McKinley, Robert E. Cohen, Michael F. Rubner, *MRS Bulletin*, Vol. 33, Aug. 2008, 752-758.

8. “Polymer chain swelling induced by dispersed nanoparticles”, **Anish Tuteja**, Phillip M. Duxbury, Michael E. Mackay, *Physical Review Letters*, 2008, 100, 077801.

7. “Designing superoleophobic surfaces”, **Anish Tuteja**, Wonjae Choi, Minglin Ma, Joseph M. Mabry, Sarah A. Mazzella, Gregory C. Rutledge, Gareth H. McKinley, Robert E. Cohen, *Science*, 2007, 318, 1618-1622.

This work was named as one of the top five breakthroughs of the year in Nanotechnology (2007) by Technology Review and was also highlighted on National Public Radio (Marketplace), ABC News, CBC News, Science Podcast, The New York Times, The Washington Post, The Boston Globe, The Tech, Chemical & Engineering News, Chemistry World, Technology Review, Technology Review – From the labs: Nanotechnology (breakthroughs in nanotechnology and what they mean), Chosun Daily (South Korea) - Top five new discoveries that will change the world, Chemical Engineering Magazine, CEP Magazine, MRS-Materials News, MIT – Department of Chemical Engineering Homepage and News, and over 50 other magazines, newspapers and websites.

Times Cited: 110.

6. “Multifunctional nanocomposites with reduced viscosity.” **Anish Tuteja**, Phillip M. Duxbury, Michael E. Mackay, *Macromolecules*, 2007, 40, 9427-9434.

5. “Breakdown of the continuum Stokes-Einstein relation for nanoscale inclusions in polymer melts”, **Anish Tuteja**, Michael E. Mackay, Suresh Narayanan, Sobashini Asokan, Michael S. Wong, *Nano letters*, 2007, Vol.7, No.5, 1276-1281.

This work was highlighted on omninexus.com and various other websites.

Times Cited: 21.

4. “The molecular architecture and rheological characterization of novel intramolecularly crosslinked polystyrene nanoparticles”, **Anish Tuteja**, Michael E. Mackay, Brooke van Horn, Craig J. Hawker, Derek L. Ho, *Journal of Polymer Science – Part B – Polymer Physics*, 2006, 44, 1930-1947.

3. “General strategies for nanoparticle dispersion”, Michael E. Mackay, **Anish Tuteja**, Phillip M. Duxbury, Craig J. Hawker, Brooke van Horn, Zhibin Guan, R.S. Krishnan, *Science*, 2006, 311, 1740-1743.

Times Cited: 105.

This work was featured on Science and Society, Michigan Small Tech news, MSU College of Engineering news and various other websites.

2. “Effect of ideal, organic nanoparticles on the flow properties of linear polymers; non-Einstein-like behavior”, **Anish Tuteja**, Michael E. Mackay, Brooke van Horn, Craig J. Hawker, *Macromolecules*, 2005, 38, 8000-8011.

Times Cited: 29.

1. “Nanoscale effects leading to non-Einstein-like decrease in viscosity”, Michael E. Mackay, Tien T. Dao, **Anish Tuteja**, Derek L. Ho, Brooke van Horn, Ho-Cheol Kim, Craig J Hawker, *Nature Materials*, 2003, 2(11), 762-766.

Times Cited: 116.

This work was discussed in detail in the News and Views section of Nature Materials and ‘Nature view’ for Nature magazine.

Conference Proceedings:

8. “Engineering superhydrophobic and superoleophobic surfaces”, **Anish Tuteja**, Wonjae Choi, Joseph M. Mabry, Gareth H. McKinley, Robert E. Cohen, **NSTI-Nanotech 2008**, Conference Proceedings.

7. “Creating super-oleophobic surfaces”, **Anish Tuteja**, Wonjae Choi, Joseph M. Mabry, Gareth H. McKinley, Robert E. Cohen, **7th European Coating Symposium - 2007**, Conference Proceedings.

6. “Measurement of nanoparticle diffusion coefficients in polymer melts; breakdown of the continuum Stokes-Einstein relation.” **Anish Tuteja**, Michael. E. Mackay, Suresh Narayanan, Michael S. Wong, Craig J. Hawker, *Polymeric Materials: Science and Engineering*, 2007, 96, 797.

5. “Unusual, non-Einstein-like behavior in nanoparticle-polymer mixtures”, Michael E. Mackay, **Anish Tuteja**, Craig J. Hawker, Brooke van Horn, *Polymeric Materials: Science and Engineering*, 2006, 94, 718-719.

4. “Multifunctionality in nanocomposites”, **Anish Tuteja**, Michael. E. Mackay, *Polymeric Materials: Science and Engineering*, 2005, 93, 554.

3. “Nanoparticle induced phase stability in polymers”, **Anish Tuteja**, Michael E. Mackay, Craig J. Hawker, Brooke van Horn, Zhibin Guan, *Polymer Preprints*, 2005, 46(2), 563-564.

2. “Rheological behavior of intramolecularly crosslinked nanoparticles”, Craig J. Hawker, Michael E. Mackay, Thomas P. Russell, Michael Malkoch, Eric Drockenmuller, Ho-Cheol Kim, **Anish Tuteja**, Derek L. Ho, *Polymeric Materials: Science and Engineering*, 2004, 90, 184.

1. “Nanoparticle induced non-Einstein like behavior of polymer melts”, **Anish Tuteja**, Michael E. Mackay, Craig J. Hawker, *Polymeric Materials: Science and Engineering*, 2004, 91, 1003-1004.

Patents:

- “Water and oil resistant fabrics with tunable surface energy”, **Anish Tuteja**, Wonjae Choi, Joseph M. Mabry, Gareth H. McKinley, Robert E. Cohen, (USPTO, Serial number 60/917,012 (MIT-12643), Filed May 9, 2007)

Other Professional Experiences:

Research Assistant: (January 2002-July 2006), Michigan State University.

Teaching Assistant: (August 2001-December 2001), CHE 431, “Process Design and Optimization”.

- Led lectures, graded and tutored several students on the various aspects of process equipment design.

Industrial Trainee: (May 2001-July 2001), Semiconductor Complex Limited, India.

- Worked as part of a team responsible for the safe operation of the distillation column used for producing gaseous nitrogen as well as the ultra high purity water.

Selected Presentations:

- Invited talk, Ford Research Center, Dearborn, MI, November 18, 2009.
- Invited talk, Department of Materials Science and Engineering, University of Michigan, April 9, 2009.
- Invited talk, Department of Chemical Engineering, Texas A&M University, March 23, 2009.
- Invited talk, Department of Chemical Engineering, University of Washington, March 9, 2009.
- Invited talk, Department of Chemical Engineering, University of South Carolina, March 5, 2009.
- Invited talk, Department of Chemical and Biomolecular Engineering, Johns Hopkins University, February 26, 2009.
- Invited talk, Department of Chemical Engineering and Materials Science, University of Southern California, February 2, 2009.
- Invited talk, Department of Chemical Engineering, Columbia University, January 12, 2009
- Materials Research Society, 2008 Fall Meeting, December 1 – 5, Boston, MA.
- American Institute of Chemical Engineers, 2008 Annual Meeting, November 16 - 21, Philadelphia, PA.
- Invited talk, Schlumberger-Doll Research Center, Cambridge, MA, September 16, 2008.
- Nano Science and Technology Institute, Nanotech 2008, June 1- 5, Boston, MA.
- American Institute of Chemical Engineers, 2007 Annual Meeting, November 4 - 9, Salt Lake City, UT.
- American Chemical Society, 234th National Meeting, August 19 - 23, 2007, Boston, MA.
- American Chemical Society, 233rd National Meeting, March 25 - 29, 2007, Chicago, IL.
- Invited talk, General Electric – Plastics division, Mt. Vernon, Indiana, November 14, 2005
- Invited talk, Intel research and development labs, Hillsboro, Oregon, November 7, 2005
- Invited talk, National Starch and Chemicals Limited, Bridgewater, New Jersey, October 17, 2005

- American Chemical Society, 230th National Meeting, August 28 - September 1, 2005, Washington D.C.
- 6th National Graduate Research Polymer Conference, June 15-17, 2005, University of Massachusetts, Amherst, Massachusetts.
- Departmental Research Forum, Chemical Engineering and Material Science, Michigan State University, April 7 2005, East Lansing, Michigan.
- American Physical Society, 2005 March meeting, March 21 - 25, 2005, Los Angeles, California.
- Society of Rheology, 76th Annual Meeting, February 13 - 17, 2005, Lubbock, Texas.
- American Institute of Chemical Engineering, 2004 Annual Meeting, November 7-12, Austin, TX.
- American Chemical Society, 228th National Meeting, August 22-26, 2004, Philadelphia, Pennsylvania.
- Society of Rheology, 75th Annual Meeting, Carnegie Mellon University Oct 12 - 16, 2003, Pittsburgh, Pennsylvania.

Honors and Activities:

- Guest lecturer for the graduate course on “Physical chemistry of polymers” at MIT.
- Mentored and trained a visiting graduate student, Amalie Revaux (Ecole Polytechnique, Paris, France), during her third year research internship. *Her report on the work titled “FluoroPOSS filled PMMA: Surface and Mechanical properties” was accorded ‘special distinction’, and an award recognizing that honor by the faculty at Ecole Polytechnique.*
- Supervised two senior undergraduate students for summer projects under the “Research Experience for Undergraduates (REU)” program sponsored by the Center for Material Science and Engineering, MIT
 - Amy Tsui (Department of Chemical and Biochemical Engineering, Rutgers, The State University of New Jersey, USA) – Project: “Development of flexible, transparent superoleophobic surfaces.” *Amy won 1st place at the AIChE Student Poster Competition – 2008 (Materials Science section).*
 - Derek Smith (Department of Chemical Engineering, University of Rochester, USA) – Project: “Investigation of various fluorinated molecules as aids for developing superoleophobic surfaces”
- Invited reviewer for Macromolecules, Journal of Colloids and Interfacial Science, Journal of Physical Chemistry, Materials Research Society, Chemical Physics Letters and Journal of Biobased Materials and Bioenergy.
- Mentored and trained two undergraduate students on rheological testing and various characterization tools at Michigan State University.
- Member of the American Chemical Society (ACS), the Materials Research Society (MRS) and the American Institute of Chemical Engineers (AIChE).