Controlling Liquids' Properties for Tomorrow's Materials & Therapeutics

Thomas Truskett

Les and Sherri Stuewer Endowed Professor and Department Chair, McKetta Department of Chemical Engineering

CURRENT RESEARCH

Why understanding liquids helps to diagnose and treat disease

When compared under a microscope, a piece of glass and a cup of water look surprisingly similar; the molecules are randomly organized. So why doesn't glass flow like a liquid? Dr. Thomas Truskett, the Les and Sherri Stuewer Endowed Professor and Department Chair of the McKetta Department of Chemical Engineering at The University of Texas at Austin, is interested in understanding and controlling how liquids behave. His goal is to use this knowledge to, e.g., develop new materials with unusual and useful properties or new methods to for delivering protein therapeutics in dosages that only require a single shot per day. If successful, the latter could be used to help treat a wide range of diseases, from allergies and autoimmune disorders to cancer, without harmful side effects.

Dr. Truskett's work has demonstrated how molecular scale theory and computation can help accelerate the discovery of novel materials for technological applications and provide a basis for understanding their properties. He and his team have distinguished themselves by revealing how theoretical results on seemingly simple, but carefully chosen, model systems can produce a road-map for experimental collaborators to discover, understand, and develop materials for new approaches or inventions. Their models provide stringent tests for prevailing ideas on the mechanisms controlling the structure and dynamics of the condensed matter systems they study. A long-term aim of Dr. Truskett's research is to help solve problems that could lead to entirely new materials that improve human health and quality of life.

Current research includes:

- Protein Therapeutics: Protein therapeutics represent one of the most promising...

Read More at benefunder.com/

AFFILIATION

The University of Texas at Austin

EDUCATION

- Postdoctoral Fellow, 2001 - 2002 , University of California, San Francisco
- Ph.D., in Chemical Engineering, 2001 , Princeton University
- M.A., in Chemical Engineering, 1998 , Princeton University
- B.S., in Chemical Engineering, 1996 , The University of Texas at Austin

AWARDS

- Fellow, American Institute for Medical and Biological Engineering (2015)
- O'Donnell Award in Engineering, The Academy of Medicine, Engineering, and Science of Texas (2014)
- Allan P. Colburn Award for Excellence in Publications, American Institute of Chemical Engineers (2007)
- Sloan Research Fellowship in Chemistry, Alfred P. Sloan Foundation (2006)
- Packard Fellowship for Science and Engineering, David and Lucile Packard Foundation (2004)

RESEARCH AREAS

Technology, Chemistry, Materials Science / Physics, Nanotechnology

FUNDING REQUEST

Your contributions will fund the continued research of Dr. Thomas Truskett, of The University of Texas at Austin, as he demonstrates how molecular scale theory and computation can help accelerate the discovery of novel materials for technological applications and provide a basis for understanding their properties. Donations will support the $53K/year required for each Ph.D. student, $63K/year for each postdoctoral student, and additional funding for new research directions. In choosing to donate, you will play a role in helping to solve problems that could directly impact human health in the near future with single-shot injections for a variety of diseases.