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PERSONAL BACKGROUND

Education

D. Sc., Chemical Engineering, August 2006
Department of Chemical Engineering, Washington University in St. Louis, MO
Advisors: Professor Radhakrishna Sureshkumar & Professor Bamin Khomami

M.S., Chemical Engineering, December 2004,
Department of Chemical Engineering, Washington University in St. Louis, MO
Advisors: Professor Radhakrishna Sureshkumar & Professor Bamin Khomami

B. Tech., Chemical Engineering, May 2001,
Department of Chemical Engineering, Indian Institute of Technology (I.I.T.),
Chennai, India.

Professional Experience

June 2006 – Present. Postdoctoral Research Associate, Department of
Biomedical Engineering and Center for Computational Biology, Washington
University in St. Louis, MO, USA

August 2001 – May 2006. Research and Teaching Assistant, Department of
Chemical Engineering, Washington University, St. Louis, MO, USA

Professional Societies, Honors and Awards

- Second prize for best poster presentation at the Second Annual Nanotechnology and the Life Sciences Symposium, St. Louis, MO, March 30-31 (2007).
- Conference secretary for the XIVth International Workshop on Numerical Methods for non-Newtonian Flows at Santa Fe, New Mexico (2005).

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- Member of the Society of Rheology (2004-2005) and recipient of Student Travel Grant for the 76th Annual Society of Rheology Meeting and Lubbock, Texas (2005).
- Outstanding Teaching Assistant Award (2003-2004), Department of Chemical Engineering, Washington University in St. Louis.

RESEARCH

Journal and Conference Publications

1. **D. G. Thomas**, R. Sureshkumar and B. Khomami, Nonlinear dynamics of viscoelastic Taylor-Couette flow: Effect of elasticity on pattern selection, molecular conformation and drag, *to be submitted to Journal of Fluid Mechanics*, (2007).
2. Justin Trice, **Dennis Thomas**, Christopher Favazza, Radhakrishna Sureshkumar and Ramki Kalyanaraman, Pulsed-laser-induced dewetting in nanoscopic metal films: Thermal modeling and experiments. *Phys. Rev. B.*, in press (2007).
3. **D. G. Thomas**, R. Sureshkumar and B. Khomami, Pattern formation in Taylor-Couette flow of dilute polymer solutions: Dynamical simulations and mechanism, *Physical Review Letters*, **97**: 054501 (2006).
4. **D. G. Thomas**, U. A. Al-Mubaiyedh, R. Sureshkumar and B. Khomami, Time-dependent simulations on non-axisymmetric patterns in Taylor-Couette flow of dilute polymer solutions, *Journal of Non-Newtonian Fluid Mechanics*, **138**: 111-133 (2006).
5. **D. G. Thomas**, R. Sureshkumar and B. Khomami, Thermo-elastic instability in Taylor-Couette flow: Influence of inertia and gap temperature, *Proceedings of the XIVth International Congress on Rheology*, Korean Society of Rheology, August (2004).
6. **D. G. Thomas**, R. Sureshkumar and B. Khomami, Thermo-mechanical instabilities in Dean and Taylor-Couette flows: mechanisms and scaling laws, *Journal of Fluid Mechanics*, **517**: 251-279 (2004).
7. **D. G. Thomas**, R. Sureshkumar and B. Khomami, Effect of inertia on thermoelastic flow instability, *Journal of Non-Newtonian Fluid Mechanics*, **120**: 93-100 (2004).
8. **D. G. Thomas**, R. Sureshkumar and B. Khomami, Influence of fluid thermal sensitivity on the thermo-mechanical stability of Taylor-Couette flow, *Physics of Fluids*, **15** (11): 3308-3317 (2003).

9. M. V. Ramana, **D. G. Thomas** and S. Varughese, Estimating nuclear waste production in India, *Current Science*, **81**(11): 1458-1462 (2001).

Conference Presentations and Seminars

- **D. G. Thomas**, B. Khomami and R. Sureshkumar, Spatio-temporal pattern formation in viscoelastic Taylor-Couette flow: Dynamical simulation and mechanisms, AIChE Annual Meeting, San Francisco, November 12-17 (2006).
- **D. G. Thomas**, B. Khomami and R. Sureshkumar, Pattern formation in viscoelastic Taylor-Couette flow: Ribbons, oscillatory strips, disordered states and diwhirls, 78th Annual Society of Rheology Meeting, Portland, Maine, October (2006).
- **D. G. Thomas**, R. Sureshkumar and B. Khomami, Direct numerical simulation of 3-dimensional and time-dependent viscoelastic Taylor-Couette flow in the inertial regime, XIVth International Workshop on Numerical Methods for non-Newtonian Flows, Santa Fe, New Mexico, June 12-15 (2005).
- **D. G. Thomas**, R. Sureshkumar and B. Khomami, Nonlinear hydrodynamics of time-dependent viscoelastic Taylor-Couette flows of dilute polymer solutions, 76th Annual Meeting of the Society of Rheology, Lubbock, TX, February 13-17 (2005).
- **D. G. Thomas**, Mechanisms and scaling laws for flow instabilities in thermally sensitive liquids, Chemical Engineering Seminar, Washington University in St. Louis, MO, October 4 (2004).
- **D. G. Thomas**, R. Sureshkumar and B. Khomami, Thermo-elastic instability in Taylor-Couette flow: Influence of inertia and gap temperature, Seoul, S. Korea, August 22-27 (2004).
- **D. G. Thomas**, R. Sureshkumar and B. Khomami, Thermo-mechanical instabilities in Taylor-Dean flows, 56th Annual APS/DPD Meeting, East Rutherford, NJ, November 23-25 (2003).
- **D. G. Thomas**, R. Sureshkumar and B. Khomami, Thermo-mechanical instabilities in Taylor-Dean flows, Annual AIChE Meeting, San Francisco, CA, November 16-21 (2003).
- **D. G. Thomas**, R. Sureshkumar and B. Khomami, Role of inertia and gap temperature on the thermo-elastic instability in Taylor-Couette flow, 75th Annual Meeting of the Society of Rheology, Pittsburg, PA, October 12-16 (2003).
- **D. G. Thomas**, R. Sureshkumar and B. Khomami, Viscous heating on the stability of Taylor-Couette and Dean flows, 55th Annual APS/DPD Meeting, Dallas, TX, November 24-26 (2002).

Books and Book Chapters

1. **D. G. Thomas**, Flow instabilities and pattern formation in complex fluids: Effect of elasticity and thermal gradients (D. Sc. Thesis, Washington University in St. Louis, 2006).

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Poster Presentations

- P. Jones, **D. G. Thomas**, N. A. Baker, R. V. Pappu and D. Sept, Informatics resource for nanotechnology research in cancer diagnostics and therapeutics, 2nd Annual Nanotechnology and the Life Sciences Symposium, St. Louis, MO, March 30-31 (2007).
- H. G. Sim, **D. G. Thomas**, P. Jones, N. A. Baker, R. V. Pappu and D. Sept, An informatics resource for targeted nanoparticle therapeutics, NCI Nanotechnology Alliance Investigators Meeting, San Diego, CA, October 25-26 (2006).