



Howard H. Hu

Professor
Mechanical Engineering and Applied Mechanics (MEAM)

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Research Expertise: Computational mechanics | Fluid mechanics

Howard's expertise is in computational fluid dynamics. His research focus is on modeling complex flows involving multiphase and polymeric fluids, particularly flows with solid particles, liquid drops, and gas bubbles. His group has been developing numerical techniques for simulating motions of large numbers of particles in those multiphase systems. They are engaged in understanding and controlling the particulate flows in various microfluidic applications through electrophoresis and dielectrophoresis.

Member of:

- Nano/Bio Interface Center (NBIC)
- Institute for Medicine and Engineering (IME)

Education:

PhD Aerospace Engineering 1992 - University of Minnesota
MS Mechanics 1986 - Xian Jiaotong University in China
BS Mechanical Engineering 1982 - Zhejiang University in China

Recent Publications

- [Deformation of a long elastic particle undergoing electrophoresis](#), Swaminathan, T.N. | Gao, T. | Hu, H.H., *Journal of Colloid and Interface Science*, 2010
- [3D phase-field simulations of interfacial dynamics in Newtonian and viscoelastic fluids](#), Zhou, C. | Yue, P. | Feng, J.J. | Ollivier-Gooch, C.F. | Hu, H.H., *Journal of Computational Physics*, 2010
- [Deformation of elastic particles in viscous shear flow](#), Gao, T. | Hu, H.H., *Journal of Computational Physics*, 2009
- [Effect of induced-charge double layer on dielectrophoretic motion of particles](#), Swaminathan, T.N. | Hu, H.H., *Mechanics Research Communications*, 2009
- [An explicit finite difference scheme with spectral boundary conditions for particulate flows](#), Perrin, A. | Hu, H.H., *Journal of Computational Physics*, 2008



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