

KATHLEEN J. STEBE

Professor, Department of Chemical and Biomolecular Engineering

Joint appointments: Department of Materials Science and Engineering, Biomedical Engineering and Mechanical Engineering

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Professional Preparation

City College of New York, Economics, B.A., 1984

City College of New York, Chemical Engineering, M.S.E., 1989

City University of New York, Chemical Engineering, Ph.D., 1989

UTC, Compiegne, France, Division de Biomecanique; Post-doctoral Fellow, 1989-1990

Appointments

2006-present Chair, Department of Chemical and Biomolecular Engineering

2000-present Professor, Chemical and Biomolecular Engineering, JHU

Joint and secondary appts: Biomedical Engineering, Materials Science and Engineering, Mechanical Engineering

1996-2000 Associate Professor, Chemical Engineering, JHU

1991-1996 Assistant Professor, Chemical Engineering, JHU

1984-1985 Adjunct Faculty, Department of Mathematics, City College of New York

Professional Societies

American Institute of Chemical Engineers, American Physical Society, American Chemical Society.

Research Interests

Non-equilibrium interfaces, surfactants, Marangoni effects, complex fluids, nanoparticle assembly, patterned media

Honors and Awards

Fellow, Radcliffe Institute, Harvard University, 2002.

Robert S. Pond, Sr. Excellence in Teaching Award, Johns Hopkins University, 1993

Frenkiel Award, American Physical Society, DFD, 1992.

Chateaubriand Fellowship for Postdoctoral Research, Scientific Mission of France, 1989

Stanley Katz Memorial Award, CCNY, 1989

Refereed Journal Publications: 55, 2 pending patents, >100 invited symposia**Recent Publications:**

1. Fan, F. and Stebe, K.J. "Size Selective Deposition and Sorting of Particles on Surfaces of Patterned Lyophilicity" *Langmuir*, 21, 1149-1152, 2005
2. Fan, F., and Stebe, KJ "Evaporative Assembly of Colloidal Particles by Evaporation on Surfaces with Patterned Hydrophobicity". *Langmuir*, 20, 3062-3067, 2004
3. Noshir S. Pesika, A. Radisic, Kathleen J. Stebe,* and Peter C. Searson* (* corresponding authors) "Fabrication of Complex Architectures Using Electrodeposition into Patterned Self Assembled Monolayers" *Nanoletters*, 6 (5), 1023-1026, 2006
4. V.X. Nguyen and K. J. Stebe, "Patterning of Colloidal Particles in an Evaporating Drop via a Surfactant Enhance Benard Instability" *Phys. Rev. Let.*, 88(16) 164501 (2002).
5. N.S. Pesika, F. Fan, P.C. Searson, and K.J. Stebe, "Site-Selective Patterning Using Surfactant-Based Resists" *J.A.C.S.*, 127, 11960-11962 (2005)

Other Recent Significant Publications:

1. J.S. Erickson, S. Sundaram, S., and K.J. Stebe, "Evidence that the Induction Time in the Surface Pressure Evolution of Lysozyme Solutions Is Caused by a Surface Phase Transition, *Langmuir* **16**(11); 5072-5078 (2000).
2. Datwani, S.S, V. Nguyen, Craig Rosslee, N. Abbott, and Stebe, K.J., "Redox-dependent surface tension and surface phase transitions of a ferrocenyl surfactant: equilibrium and dynamic analyses with fluorescence images " *Langmuir*,10 (20) 8292-8301, (2003).
3. C.D. Eggleton, T.M. Tsai, and K.J. Stebe, "Tip streaming from a drop in the presence of surfactants," *Physical Review Letters* **8704**, art. no.-048302 (2001).
4. N. S. Pesika, K. J. Stebe, P. C. Searson, "Relationship between Absorbance Spectra and Particle Size Distributions of Quantum Sized Nanocrystals", *J. Phys. Chem. B*, 107, 10412 (2003).
5. Fiegel, J., Jin, F., Hanes, J. and Stebe, KJ "Wetting of Particles in Thin Liquid Films" *J. Colloid Interface Sci.*, 291, 507-514, 2005

Synergistic Activities

PI of new IGERT program on nanoprobes for biology which draws on four degree granting departments at JHU (ChemBE, Physics, Materials Science and Engineering and Biology) and creates new ties to neighboring institutions (the Carnegie Institute, the Johns Hopkins School of Medicine, etc.) co-PI of HHMI-NIBIB training grant in nano-biotechnology. Extensive research outreach activities including routine advisor high school student researchers in the "Research Experience for High School Students" program; undergraduate students in the "Research Experience for Undergraduate Students" program. Directed over 20 JHU undergraduates in research experiences, 5 of whom were women, 2 of whom were African American. A total 6 of these 20 undergraduate researchers have gone on to doctoral programs. Serve on Editorial Board, *Colloids and Surfaces* (1997–present), extensive service in AIChE, former Chair of the Graduate Program in ChemBE. Frequent speaker at open house activities.

Collaborators and other Affiliations

Collaborators (last four years) C. Eggleton (UMBC), J. Hanes (Johns Hopkins University), P. Searson (Johns Hopkins University), T. M. Tsai (NTU, Singapore), D. Wirtz (Johns Hopkins University), J. Erlebacher (Johns Hopkins University), R. Balasubramaniam, (NCMR, NASA), K. Konstantopolous (Johns Hopkins University), Shi-Yow Lin (NTU, Taiwan), R. Leheny (Johns Hopkins University), D. Reich (Johns Hopkins University), J. Koplik (City College of New York), G. Drazer (Johns Hopkins University)

Graduate and Postdoctoral Advisors:

Graduate Advisor: C. Maldarelli

Post-Doctoral Advisor: D. Barthes-Biesel

Thesis Advisor and Postgraduate-Scholar Sponsor:

Graduate Students: D. O. Johnson (Orica Explosives), S. Sundaram (Rohm and Haas), J. Ferri (Assistant Professor, Lafayette College), V. N. Truskett (Molecular Imprints), S. Datwani (Labcyte Inc.), N. S. Pesika (co-advised with P. C. Searson; post-doctoral fellow UCSB), Fang Jin (post-doctoral fellow, UC Irvine, as of Jan'07).

Postdoctoral Advisees: J. Chen (Dean, Beijing Institute of Technology), Y. P. Pawar (Unilever), N. Gupta (Assistant Professor, University of New Hampshire), F. Fan (Saoirse Inc. Cambridge, MA), Ram Hanamanthu (Solyndra, Inc, Santa Clara, CA).