

Zhenli Xu

RESEARCH INTERESTS

Modelling and computation of biological and physical systems;
Molecular dynamics and Monte Carlo simulations;
Numerical solutions of partial differential equations.

UNIVERSITY EDUCATION

09/2004 - 06/2007, University of Science and Technology of China, Ph.D. in Mathematics
09/2001 - 06/2003, University of Science and Technology of China, M.S. in Mathematics
09/1997 - 06/2001, University of Science and Technology of China, B.S. in Mathematics

ACADEMIC POSITIONS

08/2016 - , *Professor*, Shanghai Jiao Tong University, Shanghai
01/2010 - 07/2016, *Associate Professor*, Shanghai Jiao Tong University, Shanghai
08/2012 - 08/2013, *Humboldt Fellow*, University of Stuttgart and ESPCI ParisTech
08/2007 - 12/2009, *Postdoctoral Fellow*, University of North Carolina at Charlotte

HONORS

2015, Annual Most Excellent Class Supervisors at Shanghai Jiao Tong University
2012, National Youth Top-notch Talent Program, Central Organization Department of China
01/2010, New Century Excellent Talent Program, Chinese Ministry of Education

SELECTED PUBLICATIONS

1. M. Ma, S. Zhao, H. Liu and Z. Xu, Microscopic insights into the efficiency of capacitive mixing process, *AIChE J.*, 63(2017), 1785–1791.
2. M. Ma, Z. Gan and Z. Xu, Ion structure near a core-shell dielectric nanoparticle, *Phys. Rev. Lett.*, 118(2017), 076102.
3. Z. Gan, S. Jiang, E. Luijten and Z. Xu, A hybrid method for systems of closely spaced dielectric spheres and ions, *SIAM J. Sci. Comp.*, 38(2016), B375-B395.
4. Z. Gan, H. Wu, K. Barros, Z. Xu and E. Luijten, Comparison of efficient techniques for the simulation of dielectric objects in electrolytes. *J. Comput. Phys.*, 291(2015),317-333.
5. M. Ma and Z. Xu, Self-consistent field model for strong electrostatic correlations and inhomogeneous dielectric media. *J. Chem. Phys.*, 141(2014), 244903.
6. Z. Xu and A. C. Maggs, Solving fluctuation-enhanced Poisson-Boltzmann equations, *J. Comput. Phys.*, 275(2014),310-322.
7. Z. Xu, Y. Liang and X. Xing, Mellin transform and image charge method for dielectric sphere in an electrolyte, *SIAM J. Appl. Math.*, 73(2013), 1396-1415.
8. B. Li, P. Liu, Z. Xu, and S. Zhou, Ionic size effects: Generalized Boltzmann distributions, counterion stratification, and modified Debye length, *Nonlinearity*, 26 (2013) 2899-2922.
9. Z. Xu and W. Cai, Fast analytical methods for macroscopic electrostatic models in biomolecular simulations, *SIAM Rev.*, 53(2011), 683-720.
10. Z. Xu and S. Deng and W. Cai, Image charge approximations of reaction fields in solvents with arbitrary ionic strength, *J. Comput. Phys.*, 228(2009), 2092-2099.

11. P. Zhang, S.C. Wong and Z. Xu, A hybrid scheme for solving a multi-class traffic flow model with complex wave breaking, *Comput. Methods Appl. Mech. Engrg.*, 197(2008), 3816-3827
12. Z. Xu, H. Han and X. Wu, Adaptive absorbing boundary conditions of Schrödinger-type equations: Application to nonlinear and multi-dimensional problems, *J. Comput. Phys.*, 225(2007), 1577-1589.