Alex Sodt

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Education

2007 PhD in Chemistry

- **Thesis:** *Electronic structure on large molecules: Fast two-electron integrals and linear dependence*, University of California at Berkeley
- **Adviser:** Martin Head-Gordon

2000 BS in Chemistry and Physics from the University of Washington

Current Position

- **Post-doctoral fellow**
  Adviser: Richard W. Pastor, December 2009-present.

Previously

- **Post-doctoral fellow**
  Adviser: Teresa Head-Gordon, September 2007-October 2009.

Teaching

- **Teaching Assistant**, Chemistry 1A (twice), Quantitative Analysis

Publications

1. A. Sodt and R. W. Pastor, Bending free energy from simulation: Correspondence of planar and inverse hexagonal lipid phases. *Biophys. J.* **104** 2202-2211 (2013)

2. A. Sodt and R. W. Pastor, The tension of a curved surface from simulation *J. Chem. Phys.* **137** 234101 (2012)

3. L. Zhang, A. Sodt, R. M. Venable, R. W. Pastor and M. Buck, Prediction, Refinement and Persistency of Transmembrane Helix Dimers in Lipid Bilayers using Implicit and Explicit Solvent/Lipid Representat ions: Microsecond Molecular Dynamics Simulations of ErbB1/B2 and EphA1 *Proteins: Struct., Funct., Bioinf.* **81** 365-376 (2013)

4. C. M. Pfefferkorn, F. Heinrich, A. Sodt, A. S. Maltsev, A. S., R. W. Pastor, and J. C. Lee, Depth of α-Synuclein in a Bilayer Determined by Fluorescence, Neutron Reflectometry, and Computation *Biophys. J.* **102** 613-621 (2012)

5. J. Subotnik, J. Vura-Weis, A. Sodt and M. Ratner, Predicting accurate electronic excitation transfer rates via Marcus theory with Boys or Edmiston-Ruedenberg localization diabatization *Journal of Physical Chemistry, A.* **114** 8665-8675 (2010)

6. A. Sodt and T. Head-Gordon, An implicit solvent coarse-grained lipid model with correct stress profile *Journal of Chemical Physics* **132** 205103 (2010)

7. A. Sodt and T. Head-Gordon, Driving forces for transmembrane alpha-helix oligomerization *Biophysical Journal* **99** 227-237 (2010)

8. A. Sodt and M. Head-Gordon, Hartree-Fock exchanged computed using the atomic resolution of the identity approximation *Journal of Chemical Physics* **128** 104106 (2008)

9. J. Subotnik, A. Sodt and M. Head-Gordon, The limits of local correlation theory: Electronic delocalization and chemically smooth potential energy surfaces *Journal of Chemical Physics* **128** 034103 (2008)

Publications, continued

10. J. Subotnik, A. Sodt and M. Head-Gordon, Localized orbital theory and ammonia triborane
Physical Chemistry Chemical Physics **9** 5522-5530 (2007)

11. A. Sodt, J. Subotnik and M. Head-Gordon, Linear scaling density fitting
Journal of Chemical Physics **125** 194109 (2006)

12. J. Subotnik, A. Sodt and M. Head-Gordon, A near linear-scaling smooth local coupled cluster algorithm for electronic structure
Journal of Chemical Physics **125** 074116 (2006)

13. A. Sodt, G. Beran, Y. Jung and M. Head-Gordon, A fast implementation of perfect pairing and imperfect pairing using the resolution of the identity approximation
Journal of Chemical Theory and Computation **2** 300-305 (2006)

14. G. Beran, B. Austin, A. Sodt and M. Head-Gordon, Unrestricted perfect pairing: The simplest wave-function-based model chemistry beyond mean field
Journal of Physical Chemistry A **109** 9183-9192 (2005)

15. Y. Jung, A. Sodt, P. Gill, and M. Head-Gordon, Auxiliary basis expansions for large-scale electronic structure calculations
PNAS **102** 6692-6697 (2005)

Recent meetings attended

- **Biophysical Society 2013**, Philadelphia
  Poster: Lipid Bilayer Curvature Frustration
  A. Sodt and R. Pastor

- **Biophysical Society 2012**, San Diego
  Poster: Lipid Mechanical Properties from computer simulation
  A. Sodt and R. Pastor

- **Biophysical Society 2011**, Baltimore
  Poster: The lateral stress profiles of lipid bilayers compared with spontaneous lipid curvature using computer simulations
  A. Sodt and R. Pastor

- **Physics, Chemistry, and Biology of Membrane Proteins**, Arizona State University (2012)
  Talk: Spontaneous curvature from simulation

- **Advances in Biomolecular Modelling and Simulations using CHARMM**, University College Dublin, Ireland (2012)
  Talk: Pure Bilayer Simulations in CHARMM
  Talk: Mechanical Properties of Peptide-Membrane Systems