

## Arthur F. Voter

Theoretical Division, T-1, MS B214  
Los Alamos National Laboratory  
Los Alamos, New Mexico 87545  
(505) 667-6198  
afv at lanl.gov

### EDUCATION AND TRAINING

1983-1985	Postdoctoral Fellow	Los Alamos National Laboratory
1983	Ph.D. Chemistry	California Institute of Technology
1977	B.S. Chemistry	Pennsylvania State University

### RESEARCH AND PROFESSIONAL EXPERIENCE

2003 – present	Los Alamos National Laboratory, Laboratory Fellow
1985-2003	Los Alamos National Laboratory, Technical Staff Member

### RECENT HONORS

Fellow of the American Physical Society	2006
Los Alamos National Laboratory Fellow	2003

### RESEARCH EXPERIENCE

Over thirty years of experience developing and applying atomistic simulation methods for problems in materials science, chemistry and physics, especially for reaching long time scales in activated processes. Developed the first rate-catalog kinetic Monte Carlo approach, the hyperdynamics method, the parallel replica dynamics method, and the temperature accelerated dynamics method. Also developed novel free-energy differencing methods, KPM-based N-scaling approximation to tight binding, and some embedded atom method interatomic potentials for fcc metals.

### SELECTED PUBLICATIONS (of >150. Also see “representative publications”)

- *Dynamical Corrections to Transition State Theory for Multistate Systems: Surface Self-Diffusion in the Rare-Event Regime*, A.F. Voter and J.D. Doll, *J. Chem. Phys.* **82**, 80 (1985).
- *Classically Exact Overlayer Dynamics: Diffusion of Rhodium Clusters on Rh(100)*, A.F. Voter, *Phys. Rev. B* **34**, 6819 (1986).
- *Hyperdynamics: Accelerated molecular dynamics of infrequent events*, A.F. Voter, *Physical Review Letters*, **78**, 3908 (1997).
- *Parallel replica method for dynamics of infrequent events*, A.F. Voter, *Physical Review B* **57**, 13985 (1998).
- *Temperature-accelerated dynamics for simulation of infrequent events*, M.R. Sorensen and A.F. Voter, *Journal of Chemical Physics*, **112**, 9599 (2000).
- *Extending the Time Scale in Atomistic Simulation of Materials*, A.F. Voter, F. Montalenti and T.C. Germann, *Annu. Rev. Mater. Res.* **32**, 321 (2002).
- *Introduction to the Kinetic Monte Carlo Method*, A.F. Voter, in *Radiation Effects in Solids*, edited by K. E. Sickafus, E. A. Kotomin and B.P. Uberuaga (Springer, NATO Publishing Unit, Dordrecht, The Netherlands, 2007) pp. 1-23.
- *Direct transformation of vacancy voids to stacking fault tetrahedra*, B.P. Uberuaga, R.G. Hoagland, A.F. Voter, and S.M. Valone, *Phys. Rev. Lett.* **99**, 135501 (2007).

- *Efficient annealing of radiation damage near grain boundaries via interstitial emission*, X.M. Bai, A.F. Voter, R.G. Hoagland, M. Nastasi, and B.P. Uberuaga, *Science* **327**, 1631 (2010).
- *Local Hyperdynamics*, S.Y. Kim, D. Perez, and A.F. Voter, *J. Chem. Phys.* **139**, 144110 (2013).
- *Competing kinetics and He bubble morphology in W*, L. Sandoval, D. Perez, B.P. Uberuaga, and A.F. Voter, *Phys. Rev. Lett.* **114**, 105502 (2015).