Wei Cai
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Professional Preparation
Huazhong University of Science and Technology, Optoelectronic Engineering, B.S. 1995
Massachusetts Institute of Technology, Nuclear Engineering, Ph.D. 2001
Lawrence Livermore National Laboratory, Lawrence Postdoctoral Fellow, 2001-2004

Appointments
2004-present Assistant Professor, Dept. of Mechanical Engineering, Stanford University

Five Most Relevant Publications
[1] W. Cai, V. V. Bulatov, J. Chang, J. Li, and S. Yip, *Dislocation Core Effects on Mobility*, in F. R. N. Nabarro and J. P. Hirth, ed. *Dislocations in Solids*, vol. 12, p. 1, (Elsevier 2004).
[2] J. Marian, W. Cai and Vasily V. Bulatov, "Dynamic Transitions in Dislocation Motion: from smooth to rough to twinning", *Nature Materials*, **3**, 158 (2004).
[3] M. de Koning, W. Cai, B. Sadigh, T. Oppelstrup, M. H. Kalos, and V. V. Bulatov, "Adaptive importance sampling Monte Carlo simulation of rare transition events", J. Chem. Phys. 122, 074103 (2005).
[4] W. Cai, M. H. Kalos, M. de Koning, and V. V. Bulatov, "Importance Sampling of Rare Transition Events in Markov Processes", *Physical Review E*, **66**, 046703 (2002).
[5] W. Cai, M. de Koning, V. V. Bulatov, and S. Yip, "Minimizing Boundary Reflections in Coupled-Domain Simulations", Phys. Rev. Lett. 86, 5727 (2001).

Synergistic Activities
i) Editorial board – Acta Mechanica Sinica
ii) Coauthoring graduate textbook – *Computer Simulation of Dislocations,* V. V. Bulatov and W. Cai, Oxford University Press, to be published.
iii) Teaching –
Introduction to Molecular Simulations (ME346 Stanford graduate course Aut Qtr. 2004)
Elasticity of Microscopic Structures (ME340B Stanford graduate course Win Qtr. 2004)
Introduction to Statistical Mechanics (ME334 Stanford graduate course Win Qtr. 2005)
iv) Developing new research and education tool – MD++, an atomistic modeling package enabling interactive use and online visualization, a good tool for beginners to learn atomistic simulations, freely distributed in companion with Oxford book *Computer Simulation of Dislocations* and used by students in Stanford class *Introduction to Molecular Simulations*.
v) Member – American Nuclear Society, American Physical Society, Materials Research Society, Alpha Nu Sigma Honor Society of American Nuclear Society, Sigma Xi Scientific Research Society

Awards
Presidential Early Career Award for Scientists and Engineers (PECASE) 2004
Frederick E. Terman Fellowship, Stanford University, 2004-2007
Lawrence Fellowship, Lawrence Livermore National Laboratory, 2001-2004

Collaborators

David M. Barnett	Stanford University
Robert Kukta	State University of New York, Stony Brook
Giulia A. Galli	Lawrence Livermore National Laboratory
Sidney Yip (graduate advisor)	Massachusetts Institute of Technology
Vasily V. Bulatov (postdoctoral mentor)	Lawrence Livermore National Laboratory

Current Advisees

PhD students at Stanford University, total number (3)

Keonwook Kang, Eunseok Lee, Chris Robert Weinberger