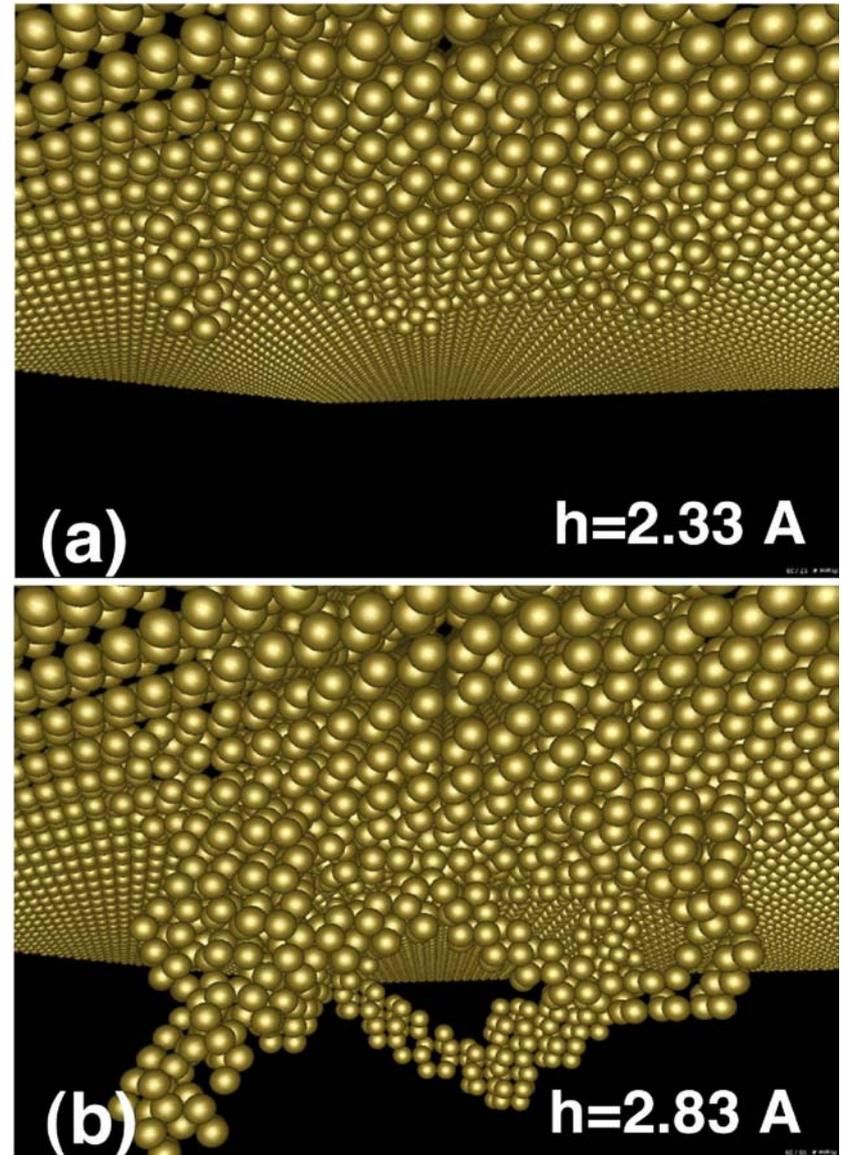


“Billion-Atom Multiscale Simulations of Nanosystems on a Grid”
Priya Vashishta, Rajiv K. Kalia & Aiichiro Nakano
University of Southern California, DMR-0113761

**Nanoindentation in
Silicon Carbide Ceramic**

**Multimillion-atom
molecular-dynamics
simulations on parallel
computers reveal that
nanoindentation-induced
amorphization in silicon
carbide ceramic is driven
by coalescence of
dislocation loops**

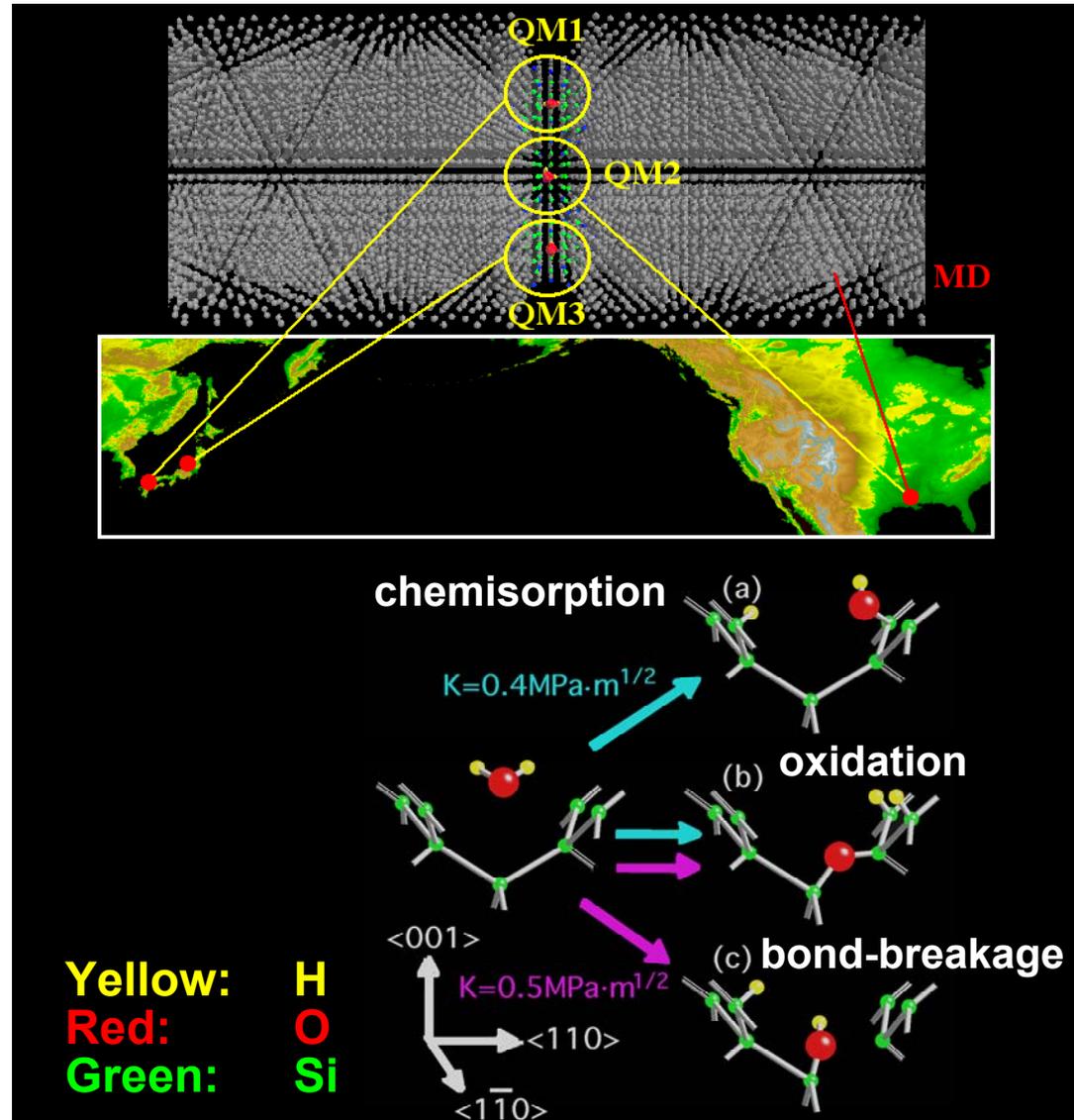


“Billion-Atom Multiscale Simulations of Nanosystems on a Grid”

Priya Vashishta, Rajiv K. Kalia & Aiichiro Nakano
University of Southern California, DMR-0113761

Hierarchical Simulation of Environmentally-assisted Fracture on Grid

Multiscale quantum-mechanical/molecular-dynamics simulation on a Grid of Linux clusters in the US & Japan shows environmental effects of water molecules on the fracture in Si



“Billion-Atom Multiscale Simulations of Nanosystems on a Grid”

Priya Vashishta, Rajiv K. Kalia & Aiichiro Nakano

University of Southern California, DMR-0113761

Outreach

Computational Science Workshop for Underrepresented Groups (CSWUG) January 5-11, 2004 at USC

USC
UNIVERSITY
OF SOUTHERN
CALIFORNIA

"This workshop will be very beneficial in my future."
— Peter Muhoro

"The activities of assembling a computer from the ground up and learning about parallel computing has been great."
— Glenn Snyder

"The workshop at USC has broadened my horizons."
— Jonathan Lee

3rd COMPUTATIONAL SCIENCE WORKSHOP FOR UNDERREPRESENTED GROUPS

Report Prepared by Student Participants and Faculty Mentors

Collaboratory for Advanced Computing and Simulations
Viterbi School of Engineering
College of Letters, Arts, and Sciences

3rd COMPUTATIONAL SCIENCE WORKSHOP FOR UNDERREPRESENTED GROUPS

January 5 – 10, 2004

CONTENTS

- Organizing Committee 1
- Preface 2
- Student Profiles 3
- Faculty Profiles 13
- Workshop Activities 18
- Lecture Summaries 22

ORGANIZING COMMITTEE

Peter Aku	University of Louisiana at Monroe
Valerie Bennett	Morehouse College
Larry Davis	U.S. Department of Defense
Earl Doomes	Southern University
Kunal Ghosh	Carnegie Mellon University
Derrick Hylton	Spelman College
Rezwanaul Karim	Jackson State University
Vincent McKay	Caltech
Taha Mzoughi	Mississippi State University
Kamesh Namuduri	Clark Atlanta University
Doyle A. Temple	Hampton University
John Villarreal	University of Texas – Pan American
Matthew F. Ware	Grambling State University

SUPPORTED BY

National Science Foundation

Department of Defense

COMPUTATIONAL SCIENCE WORKSHOP FOR UNDERREPRESENTED GROUPS USC