



High Pressure Phase Transformations Workshop 2006

ABOUT THE WORKSHOP

The workshop is a part of a National Science Foundation (NSF) Focused Research Group (FRG) research program. This research initiative includes materials scientists, manufacturing/mechanical engineers, and physicists. The goal of the workshop is to convene a larger audience to explore and discuss the nature of high pressure phase transformations that occur during indentation and machining processes and to elaborate on the research opportunities they provide. The workshop presentations and posters will convey information and theories about the latest research efforts in this field. Visit our technical web site <http://www.micro.physics.ncsu.edu>

August 14-15
2006

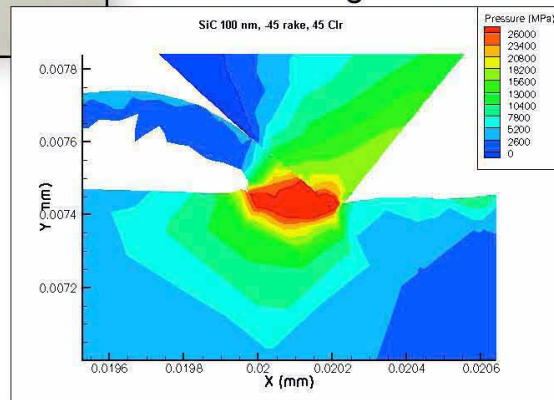
[Click here for online registration](#)



SPDT of CVD coated SiC

Picture showing the optical quality of the surface finish of ductile machined CVD SiC

FEA Machining Simulations



WORKSHOP LOCATION

Western Michigan University
College of Engineering
and Applied Sciences
Kalamazoo, Michigan

WORKSHOP GOALS

- Knowledge and awareness of recent advances regarding the high pressure phase transformations of semiconductors and ceramics.
- Interact with the broader scientific community working on these materials.
- Discuss technical and manufacturing issues associated with advanced engineering of the materials
- Participate with future program and planning activities



Conference attendees are encouraged to make an oral or poster presentation. Abstracts may be submitted to John Patten at john.patten@wmich.edu. The abstract submission deadline is July 17th.

Topics at the meeting include but are not limited to:

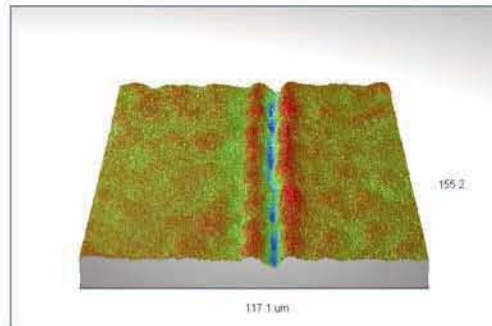
- High pressure phases (HPP) and phase transformations (HPPT) of semiconductors and ceramics: Si, Ge, Si₃N₄, SiC, etc.
- HPP of other materials
- Machining and single point diamond turning
- Nanoindentation
- Polishing and chemo-mechanical polishing
- Ductility of semiconductors and ceramics
- HPPT to metallic phases
- Mechanical, thermal, electrical and optical effects in HPP
- In-situ and post-process analysis of HPPT
- Amorphous and crystalline material dependences of HPPT
- Surface science and engineering
- Friction and wear at the nano-scale

3-Dimensional Interactive Display

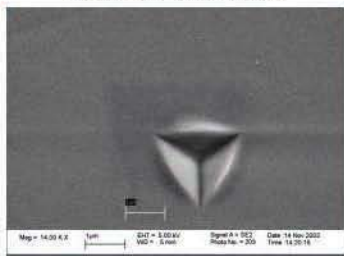
Date: 04/08/2005
Time: 17:25:55

Surface Stats:
Ra: 17.59 nm
Rq: 30.44 nm
Rt: 391.57 nm

Measurement Info:
Magnification: 39.84
Measurement Mode: VII
Sampling: 210.92 nm
Array Size: 736 X 476



Nanoindentation



50 mN (no cracking and no chipping)

Workshop Organizers

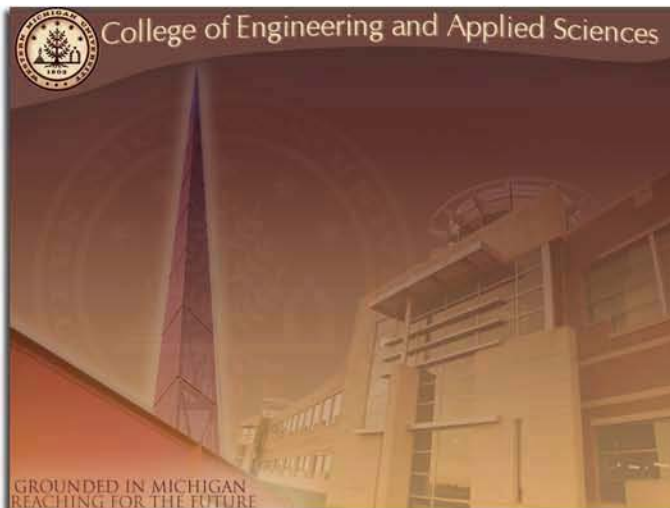
John Patten
John.Patten@wmich.edu
(269) 276-3246

Organizing Committee

John Patten (WMU)
Ron Scattergood (NCSU)
Bob Nemanich (NCSU)
George Pharr (UT-K)

Topics

- HPPT of Semiconductors and Ceramics
- Machining of Ceramics
- Nanoindentation
- Micro Raman
- Micro Beam x-Ray
- Diamond Anvil Cell
- In-situ detection and characterization techniques
- HPPT modeling and simulation





High Pressure Phase Transformations Workshop 2006

ACCOMODATIONS

- We have reserved a block of rooms at the Holiday Inn West Kalamazoo for the nights of August 13 and 14, make your reservations early. For reservations, call 269-375-6000
Rate: \$79.00 / night + tax

Hotel Accommodations

The Holiday Inn West
2747 South Eleventh St.
Kalamazoo, MI 49009
269-375-6000
www.kalamazooholidayinn.com

WORKSHOP FEE

- The workshop will be held at the College of Engineering and Applied Sciences on the Parkview Campus of Western Michigan University. The workshop fee is \$75.00 per person which includes morning coffee/danish, lunch on Monday, and the conference banquet on Monday evening. Please register online.

[Click here for online registration](#)



The tentative workshop schedule is:

Monday Aug 14

7:30-8:30A	Registration and Coffee/Danish
8:30-9:00	Welcome
9:00-10:15	Session 1
10:15-10:45	Break/Coffee
10:45-12:00	Session 2
12:00-1:00P	Lunch
1:00-2:15	Session 3
2:15-2:45	Break/Refreshments
2:45-5:00	Session 4
6:30	Conference Dinner

Tuesday Aug 15

7:30-8:30A	Coffee/Danish
8:30-10:45	Session 5
10:45-11:00	Break/Coffee
11:00-12:00	Summary and Discussion
12:00P	Adjourn



Kalamazoo, Michigan

All sessions take place in room D-115



DIRECTIONS - to WMU College of Engineering and Applied Sciences

From I-94

At exit #74, turn north on U.S. 131, go 2.8 miles, then follow the directions listed below for U.S. 131.

From U.S. 131

At exit #36A, turn east onto Stadium Dr. Turn right at first light which is Drake Rd. Continue on Drake Rd. Through the next light (at Parkview Ave.) into the WMU Parkview Campus. You will now be on Campus Drive.

From the Main WMU Campus

From the corner of Stadium Dr. and Howard, go west on Stadium Dr. until you come to Drake Rd. Turn left onto Drake and continue south through the next light (at Parkview Ave.) and into the WMU Parkview Campus. You will now be on Campus Drive.

* Visitor Parking is located on College Circle

* Student and Employee parking located behind the College of Engineering via Engineering Way.



[Click here for online registration](#)