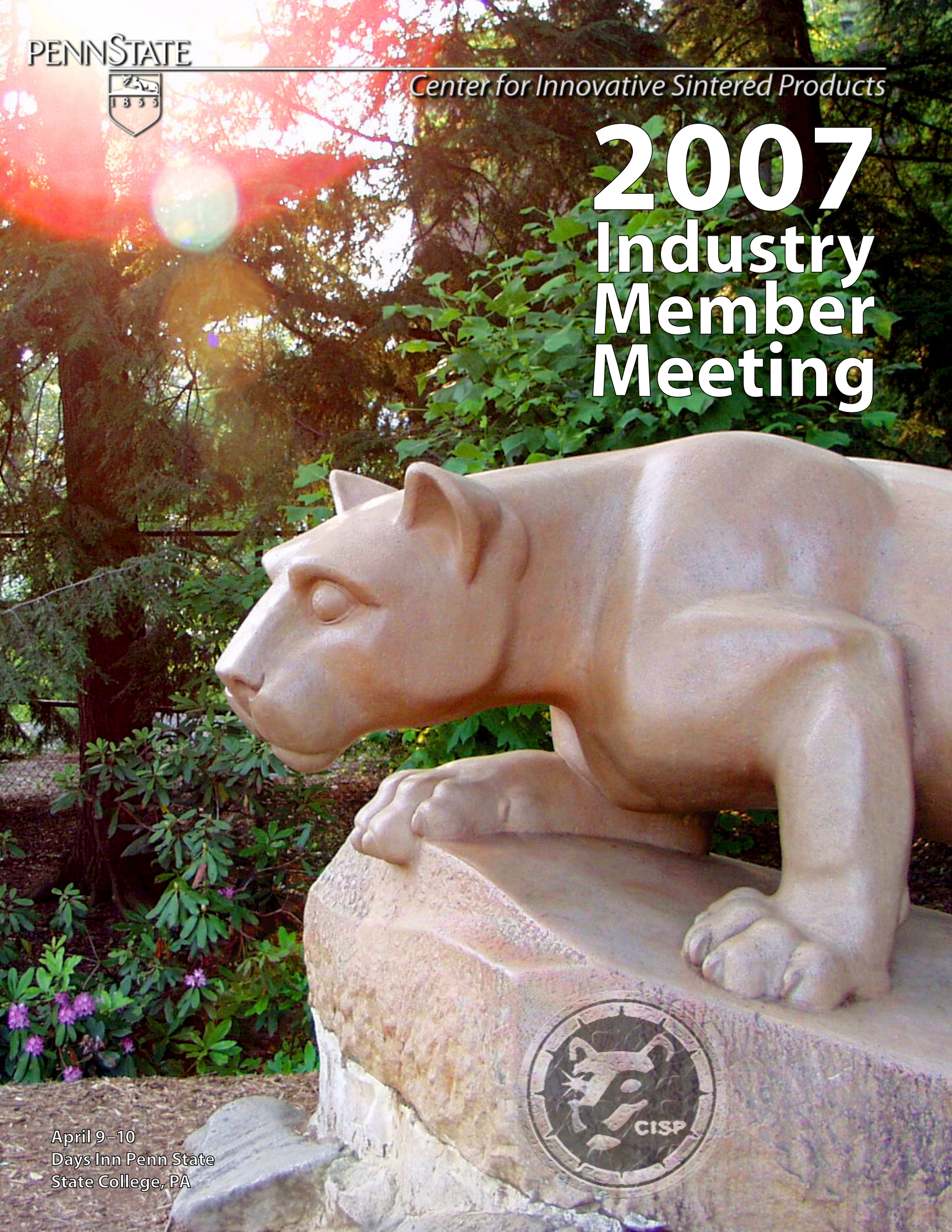
PENNSTATE
1855
Center for Innovative Sintered Products
2007
Industry
Member
Meeting
CISP
April 9–10
Days Inn Penn State
State College, PA

Speakers

Dr. Carl C. Koch

Professor
Materials Science and Engineering
North Carolina State University

Dr. Koch is a professor of materials science and engineering and associate department head, North Carolina State University, Department of Materials Science and Engineering. He has made significant contributions to understanding of mechanical alloying and mechanical attrition for preparation of amorphous and nanostructured alloys. He has published approximately 240 papers and edited or co-edited 7 books. He has achieved the prestigious rank of fellow in several professional societies, including the Minerals, Metals, and Materials Society (TMS), the American Physical Society (APS), ASM International, and the American Association for the Advancement of Science (AAAS) and is a member of the Materials Research Society (MRS) as well as Alpha Sigma Mu, Sigma Xi, and Tau Beta Pi technical honor societies. His professional awards include a Department of Energy Metallurgy and Ceramics Award, an I–R 100 Award, an NSF Research Award for Special Creativity, the Alcoa Foundation Distinguished Research Award, the North Carolina State University Alumni Distinguished Research Award, and the Alexander Quarles Holladay Medal of Excellence (the highest faculty award given at NC State). Highly active in professional associations, Dr. Koch has been national secretary of the Materials Research Society and a National Science Foundation expert on nanostructured materials. He is a former editor of Materials Science and Engineering A from 1997 to 2003. He was a member of the 8 person NSF/WTEC Panel which spent 1997 assessing the state of nanoparticle/nanostructured materials research in the world in comparison to that in the U.S. His research on nanocrystalline materials has focused upon their synthesis, characterization, and their mechanical behavior. His research in this area has been supported by the National Science Foundation and the Department of Energy.

Keynote abstract:
Mechanical Behavior of Multiphase Nanocrystalline Materials

Most commercial structural materials are multiphase and it is expected that multiphase nanocrystalline materials will also eventually be the materials of choice for applications. There has been limited research so far on the influence of second phase particles in a nanostructured matrix. More studies have been carried out on nanoscale second phases in an amorphous matrix. This talk will review the examples from the literature of mechanical properties in nanocrystalline materials as influenced by second phase particles. These second phase particles may or may not be nanoscale. In addition, the addition of solute elements which may segregate to the nanocrystalline grain boundaries will be considered. Work from the author's laboratory on nanoscale particles in nanocrystalline Al and Fe will be emphasized. These particles include both "hard" and "soft" phases and exhibit a wide range of hardness behavior. Mechanisms for the observed effects are suggested.

Dr. Clifford J. Lissenden

Associate Professor
of Engineering Science and Mechanics

Director, Ben Franklin Center of Excellence in Structural Health Monitoring

Ben Franklin Center of Excellence in Structural Health Monitoring (SHM)

SHM is a highly multidisciplinary field that assesses the well-being of structures and systems on a continuous basis or upon demand. The health of structures and systems is often degraded by poor maintenance, abuse, fatigue, overload, and environmental conditions. The goal of the Center is to keep the public as safe as practical using cost effective technologies. SHM is an extension of periodic NDE and can be used in manufacturing for quality assurance. The Center has working groups in aerospace, civil infrastructure, machine diagnostics, and bio-structures/systems.

Professor Lissenden has MS and Ph.D. degrees from the University of Virginia. He is a registered structural engineer and has expertise in solid mechanics. His current research is focused on using wave mechanics for SHM and NDE, especially guided wave ultrasonics in composite materials and joints.

Dr. Jeffrey M. Catchmark

Assistant Professor of Engineering Science and Mechanics, Agriculture and Biological Engineering, and Forest Resources

Director, Ben Franklin Center of Excellence in Nanoscience and Engineering for the Forest Products Industry

The Role of Forest Resources in Providing Green, Renewable Materials and Energy

Nanotechnology offers the potential for the development of new processes for the separation of lignocellulose into its constituent parts for use as fuels, materials and replacements for petrochemicals. Nanotechnologies may also enable the creation of new engineered renewable materials from lignocellulose impacting the wood fiber composite, paper and packaging industries. This talk, provides examples of new nanotechnologies being explored to self assemble cellulose into new nanoscale engineered materials using biological molecular motors.

Dr. Catchmark has a Ph.D. in Electrical Engineering from Lehigh University. His current research focuses on cellulose synthesis and organization, the patterning of biological molecular motors and microtubules, and chemically powered mechanical devices, pumps and sensors.

AGENDA

CISP Industry Member Meeting

April 9–10 2007

Monday, April 9th 2007

12:00	**Registration / light lunch**
1:00	**Welcome and Introductions** – *Judith Todd, Director*
1:10	Master Decomposition Curve for Binders in PIM Processing —*Ivi Smid, Associate Director*
1:30	Impact-Contact Modeling of Particle Bonding in the Cold Gas Dynamic Spray Process—*Gaurav Aggarwal*
1:50	Metal Coated Hexagonal Boron Nitride for Cold Spray Applications —*Jens Weyant*
2:05	NSF International Research Experience in Sintered Materials (UCM III, PSU and MSU)—*Don Sampson, Erik Byrne, Shaun Campbell, and Rod Reber*
2:35	2006-07 CPMT AMETEK Scholarship Recipient—James Moses
2:45	Ben Franklin Center of Excellence in Structural Health Monitoring—*Clifford J. Lissenden*
3:00	**Break**
3:30	Panel Discussion—Education and Innovation: Penn State and Industry Working Together • Introduction—*Ivi Smid* • Moderator—*Don Heaney* • Participants—Representatives of Industry, Penn State University Park, and Penn State DuBois
5:00	Social / Poster Session—CISP and ESM research
6:30	**Dinner**
7:30	The Role of Forest Resources in Providing Green, Renewable Materials and Energy—*Jeffrey M. Catchmark*
8:15	**Closing – plan for tomorrow**—*Judith Todd*

Tuesday, April 10th 2007

8:00	**Continental Breakfast**
8:30	**Welcome**—*Judith Todd*
8:35	Financial update—*Sandy Watson*
8:45	Materials Testing at CISP—*Kristina Cowan*
8:55	MicroMiniature P/M Components Utilizing Lithography for Tooling—*Don Heaney, Associate Director*
9:20	Gravitational Effects on Mechanical and Microstructural Properties of Tungsten Heavy Alloys—*Lou Campbell*
9:45	Binder Removal in Nitrogen/Hydrogen Atmospheric Mixtures —*Chantal Binet*
10:00	Industry Spotlight – Spark Plasma Sintering —*Robert Aalund, Metal Processing Systems*
10:20	**Break and poster session**
10:40	Die Compaction Simulation: Simplifying the Application of a Complex Constitutive Model Using Numerical and Physical Experiments—*Gautam Wagle*
11:00	Mechanical Behavior of Multiphase Nanocrystalline Materials—*Carl C. Koch*
12:00	**Lunch**
1:15	Industry Council Meeting
3:00	**Meeting adjourned**

Registration Form

Register me for the CISP Industry Member Meeting, April 9-10, 2007, Days Inn Penn State, 240 South Pugh St., State College, PA. Registrations will be accepted by e-mail, mail or fax through Friday, March 30th, 2007.

Name

Company

Address

City | State/Province | Country

Telephone | Fax Number | E Mail

❏ My company is a member of CISP

❏ My company is not a member of CISP, but I would like to attend this meeting ($75.00 registration fee)

I will attend: ❏ Apr 9th 2007 ❏ Apr 10th 2007 ❏ Both Days

I may attend: Apr 9th 2007 ❏ Lunch ❏ Dinner

Apr 10th 2007 ❏ Cont. Breakfast ❏ Lunch

Mail checks payable to The Pennsylvania State University

Charge my: ❏ VISA ❏ Mastercard …in the amount of $75.00

Acccount Number | Exp. Date / | CVV2 Code

Name as it Appears on card | Signature

Fax or mail completed registration form by March 30th 2007 to:

Judith A. Todd—Acting Director
Center for Innovative Sintered Products
147 Research West
University Park, PA 16802

Fax: (814) 863-8211
Phone: (814) 865-2121 (inquiries)
E Mail: CISP@psu.edu

ACCOMMODATIONS are available at the Days Inn Penn State—*please make reservations immediately*

Days Inn Penn State - 240 South Pugh St., Phone: 800-258-3297, ext 161

$75.00 flat rate (reservation code: INSP)

Map & Directions

Need help? Call 814-865-2121

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