

PENNSTATE



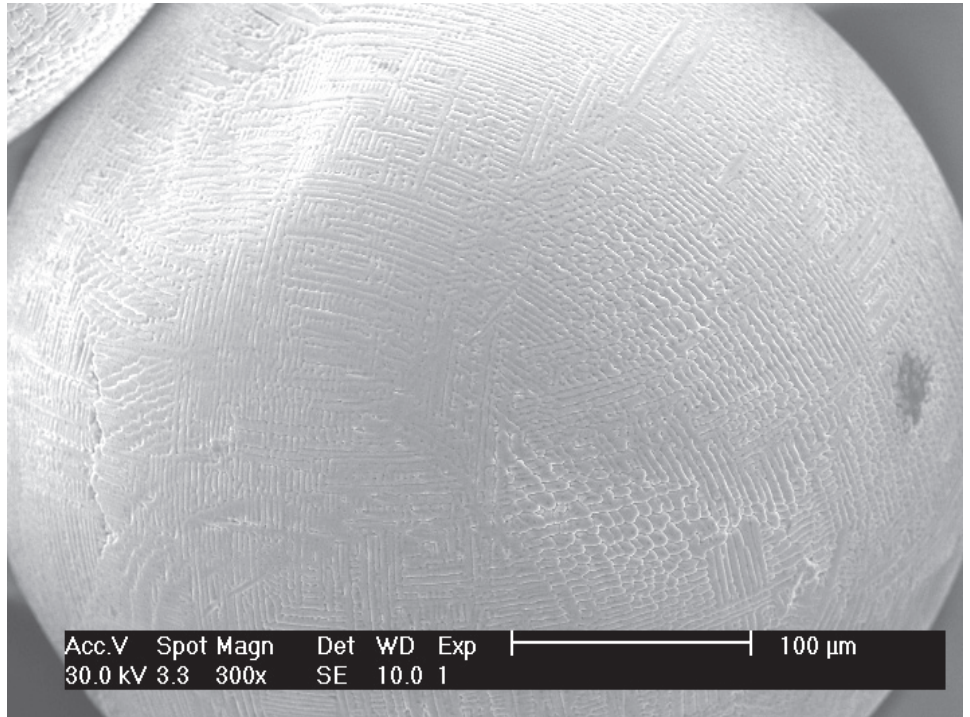
CISP

Center for Innovative Sintered Products

2010 IMM AGENDA / (814) 865-2121 / CISP@PSU.EDU / WWW.CISP.PSU.EDU

2010 Industry Member Meeting

Days Inn Penn State
State College, PA
April 13-14



Cobalt-Chromium-Molybdenum powder at 300x magnification.



Evening Speaker

Jens Huber

Dr. Fritsch Sondermaschinen GmbH

DIRECT HOT-PRESSING BY DR. FRITSCH

Direct Hot-Pressing is a new and alternative concept in the field of sintering technologies. Conventional uni-axial hot pressing is widely known and established in many industries. Most of the traditional systems heat up the furnace chamber which takes a long time. Additionally, a lot of the energy is lost since it is used for heating up the atmosphere instead of the sinter part. The Direct Hot-Pressing concept, invented by Dr. Fritsch, connects the mould directly with the electrical power, allowing sinter cycle times of only a few minutes. This energy efficient process results in comparably low operating costs. At the same time, the near-net-shape precision achieved is high and reduces mechanical re-working to an absolute minimum. The short sinter cycle times reduce the grain size growth, thus allowing the exact control of the density of the sinter parts. Direct Hot-Pressing is suitable for R&D as well as large scale production.

More than 900 of these machines have been installed



worldwide. Major customer groups include manufacturers of sputter targets, sintered hard metals, neutron absorbers, ballistic protection devices, watches, friction materials and diamond tools. Machines are designed according to the individual needs of the customer. Dr. Fritsch provides all equipment and know-how for the full automation of the production process. Tests are offered free of charge. Please feel free to contact us for further information or if you are interested in tests. www.directhotpressing.com.

Keynote Speaker

Dr. Raymond Schaak

*Associate Professor of Chemistry,
Penn State*

BENCHTOP SOLUTION ROUTES TO NANOPARTICULATE SOLIDS

Benchtop solution chemistry tools are powerful for producing nanoparticulate solids with a wide range of morphological characteristics, including controllable shapes, sizes, and size dispersities. We have been developing solution routes to “exotic” nanostructured solids in a variety of chemical systems, including transition metals, alloys, and intermetallic compounds, as well as metal phosphides, oxides, sulfides, selenides, borides, and carbides. This talk will provide an overview of our synthetic capabilities, focusing on solution routes to nanoparticulate transition metal solids. Capabilities, limitations, and applications of the solution routes will be discussed. Highlights will include efforts to generate nanoparticulate tungsten, shape-controlled late transition metal and alloy nanoparticles, and nanoparticles of non-equilibrium alloys and compounds.

Biography:

Dr. Raymond Schaak is an associate professor of chemistry and a member of the Materials Research Institute at Penn State. Dr. Schaak received a B.S. degree in chemistry from Lebanon Valley College in 1998. In 2001 he received a Ph.D. in materials chemistry from Penn State under the direction of Dr. Thomas Mallouk, where he developed the concept of “solid-state retro-synthesis” for the stepwise and predictable topotactic synthesis of bulk and nanostructured perovskite-based oxide materials. From 2001 – 2003, he was a postdoctoral research associate with Dr. Robert Cava at Princeton University, where he worked on the synthesis and physical property characterization of metal carbide, boride, phosphide, oxide, and alloy superconductors. In 2003, Dr. Schaak began his independent career as an assistant professor of chemistry at Texas A&M University. In 2007, he moved to Penn State as an associate professor of chemistry with tenure. His research group focuses on developing new chemical strategies for the synthesis of nanoscale solid-state materials and applying these materials to problems at the forefront of modern materials research. Dr. Schaak has received several prestigious awards, including a National Science Foundation (NSF) Graduate Research Fellowship (1999), an NSF CAREER Award (2006), a Beckman Young Investigator Award (2006), a DuPont Young Professor Grant (2006), a Sloan Research Fellowship (2007), and a Camille Dreyfus Teacher Scholar Award (2007).



CISP Industry Member Meeting

April 13-14, 2010

Tuesday, April 13

- 12:30 **Registration / Light Lunch**
- 1:30 **Welcome / Introductions and Status of CISP**—*Donald Heaney*
- 1:40 State of the Engineering Science and Mechanics Department—*Judith Todd*
- 1:50 Engineered Self Lubricating Coatings Utilizing Cold Spray Technology—*Lisa Stark*
- 2:15 Powder-Based High Deposition Rate Laser Cladding—*Todd Palmer*
- 2:50 Development of New Compositions and Processing of High Strength Cast Steels—*Rachel Abrahams*
- 3:15 **Break**
- 3:45 Recent Advances in Field Assisted Sintering Technology (FAST, SPS)—*Brian DeForce*
- 4:20 The Development of High Strength Cast Steels with Increased Low Temperature Toughness—*Paul Lynch*
- 4:45 The Effect of Vacuum on Final Stage Sintering—*Li Li*
- 5:10 **Social**
- 5:30 **Dinner**
- 6:30 Direct Hot Pressing by Dr. Fritsch—*Jens Huber*
- 7:15 **Closing / Plan for Tomorrow**—*Donald Heaney*

Wednesday, April 14

- 8:00 **Continental Breakfast**
- 8:30 **Welcome**—*Don Heaney*
- 8:35 Financial Update
- 8:45 Materials Testing at CISP—*Kristina Cowan*
- 8:55 Micro Forming With the Use of Lithographic Technology—*Kevin Geist*
- 9:20 High-Strain-Rate Deformation of Particulates and Parts—*Ivi Smid*
- 9:55 **Break**
- 10:25 Refractory and Hard Materials Survey Results—*Donald Heaney*
- 11:00 **Keynote Speaker:** Benchtop Solution Routes to Nanoparticulate Solids—*Raymond Schaak*
- 11:45 **Lunch**
- 12:30 Industry Council Meeting
- 2:00 **Meeting Adjourned**

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Registration Form

Register me for the CISP Industry Member Meeting, April 13–14, Days Inn Penn State, 240 S. Pugh St., State College, PA. Registrations will be accepted by e-mail, mail or fax through Friday, April 9.

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 (\$300 registration fee)

I will attend: April 13 Lunch Dinner

I may attend: April 14 Cont. Breakfast Lunch

Mail checks payable to The Pennsylvania State University

Fax or mail completed registration form by April 9 to:

Donald Heaney—Director

Center for Innovative Sintered Products

118 Research West

University Park, PA 16802

Fax: (814) 863-8211

Phone: (814) 865-2121 (inquires)

E-mail: CISP@psu.edu



ACCOMMODATIONS are available at the Days Inn Penn State—*please make reservations by March 13*

Days Inn Penn State - 240 S. Pugh St., Phone: (814) 238-8454, Fax: (814) 234-3377, E-mail: sales@centrehotel.com

\$79 per room (reference CGCSIN when making reservations)

Map & Directions



Center for Innovative Sintered Products

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