

The Peoria Chapter of ASM International
 March 1, 2004 at the
 Mark Twain Hotel - Packard Plaza

**The Peoria Chapter of ASM International and
 The Central Illinois Chapter of the American Foundry Society**

Present

**RECENT DEVELOPMENTS IN THE COMPUTATIONAL
 MODELING OF MATERIAL FAILURE**

Prof. Thomas Siegmund

MEI NIGHT

Social Hour - 4:30pm • Dinner - 5:30pm

Technical Talk - 6:00pm

Prepaid Reservations Required by February 24, 2004!! Reservations are **\$15.00**.

Call Haidong Zhang at (309) 578-6694 zhang_haidong@cat.com.

Please make all checks payable to "Peoria Chapter of ASM".

About Our Speaker...



Dr. Thomas Siegmund received his education at the University of Leoben, Austria, in 1995. He held two positions as research associate, at Brown University, Providence, RI, (1995-1996), and at the GKSS Research Center, Geesthacht, Germany (1996-1999). He currently is an assistant professor in the School of Mechanical Engineering at Purdue University. His research work in the area of "Micromechanics of Materials" focused on the areas of composite materials, mechanics of failure, and time dependent materials. Dr. Siegmund has authored 34 articles in refereed scientific journals.

◆ ◆ CHANGE IN ADDRESS? CALL STEVEN CROSS (309) 578-3017 ◆ ◆

ENGINEERS WEEK



ASM is participating in the National Engineers Week kick-off at Lakeview Museum on the afternoon of February 22. Stop by to participate in demonstrations including magnets, a liquid nitrogen cooled superconductor, pewter casting, and play-doh extrusion.

Peoria Rivermen Hockey Night!!

Come watch the Peoria Rivermen play the Reading Royals on February 28 at 7pm at the Peoria Civic Center. Tickets are \$5 and can be obtained from Trent Weaver at 309-578-9212 or Weaver_Douglas_T@Cat.com.



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Materials Park, OH 44073

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PEORIA CHAPTER ASM INTERNATIONAL
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 Vice-ChairKen Burris
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 NominatingTim Van Den Avond
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**Recent Developments in the
 Computational Modeling
 of Material Failure**

Analyses of structures are not complete without incorporating a description of the failure behavior. The challenge associated with this task is to link crack growth occurring at the atomistic and micro-structural level to the continuum behavior of the structure under investigation. Key to such investigations is the development of models describing the process of material separation. In recent years the mechanics community has devoted a considerable effort to the development of such failure models.

The talk will describe crack propagation and failure models, and the capabilities of such models for variety of materials. The following three examples will be discussed:

1. Failure of coatings and high temperature ceramic composites as of interest in thermal protection systems for e.g. space applications;
2. Failure of thin film systems as of relevance to microelectronics and microelectromechanical systems;
3. Rupture of tissue samples;

For each of these models key features of the computational approach as well as key results from applications will be presented.

Ooooppps...

If you think March's flier looks very similar to February's then you are correct. Due to last-minute rescheduling, Professor Siegmund originally advertised last month will speak in March. A short biography of February's speaker Gary Doll from Timken and a summary of his presentation—Thin Film Coatings for Rolling Element Bearings for Interrupted or Reduced Lubrication—can be found on the chapter website: www.asm-peoria.org.

2004-2005 Chapter Leadership Nominations



The Executive Committee has approved for a membership vote at the March 1, 2004 chapter meeting the following slate of officers, Executive Committee, and Finance Committee members for the chapter year 2004-2005:

Chair: Ken Burris
Vice Chair: Mike Johnson
Secretary: Dave Akers
Treasurer: Chad Siebenaler
Treasurer in Training: Mike Pollard

Executive Committee (Three year term):
Matt Kiser, Sam Banerji, Byron Paddock, Fritz Gensing, and Wally Hines

Finance Committee:
Chair – Matt Kiser and Mike Pollard
(2 year terms)
Chad Siebenaler, Ric Woldow,
and Fritz Gensing
(1 year term)

Any chapter member is eligible for nomination to these offices if the individual has the endorsement in writing of 25 members of the chapter. If there are candidates to nominate from the floor that meet these requirements, please provide the names and endorsements to Tim Van Den Avond prior to the March 1 chapter meeting.

Tim Van Den Avond
Chapter Nominating Chair