

★★★★★ FIVE STAR CHAPTER



The Materials
Information Society

**Oak Ridge
Chapter**

Thursday, January 21st, 2010
Oak Ridge Chapter of ASM International's
Guest Night

“The Nature of Friction – From nanofilms to earthquakes”

Peter J. Blau
Oak Ridge National Laboratory

Friction, its control, and its origins have fascinated scientists and philosophers for millennia. Its pervasive influence in daily life is sometimes taken for granted, but at other times, its fundamental aspects are the subject of multi-disciplinary research in tribophysics. The history of friction research and development arguably began with the invention of the wheel, and has ultimately enabled the evolution of the advanced transportation systems of the twenty-first century. Some friction technology, like the actuators inside micro-devices and spinning disk drives, depends on controlling nanometer thick films. At the other end of the spectrum lies the friction between tectonic plates and shear planes in earthquake faults. This presentation will review some of the system-specific origins of solid and lubricated friction, and describe some of its effects on microstructure. A variety of everyday applications will be used to illustrate not only how friction plays a role in recreation and technology, but also how friction can literally be a matter of life or death.

Speaker Bio

Peter J. Blau is a Distinguished R&D Staff Member in the Materials Science and Technology Division of Oak Ridge National Laboratory (ORNL). A native of Reading, Pennsylvania, he received B.S. and M.S. degrees in Metallurgy and Materials Science from Lehigh University, and a Ph.D. in Metallurgical Engineering from The Ohio State University. He has over 30 years of materials research, development, and project management experience that includes the Air Force Materials Laboratory, the National Bureau of Standards (now NIST), the Office of Naval Research, Ford Motor Company, and ORNL. His interests in materials ranges from the rapid solidification of meteorite fragments in lunar soil to thermo-mechanical treatment of aluminum alloys, and from the development of standards to regulatory issues for heavy truck brake linings. In 1992 he led the development of the ASM Handbook on “Friction, Lubrication and Wear Technology,” and in 1997 chaired the International Conference on Wear of Materials. A past Chairman of ASTM Committee G-2 on Wear and Erosion, he is a fellow of ASM International, ASTM International, and the Society for Tribologists and Lubrication Engineers (STLE). The author of four books and over 150 technical articles, he serves on the editorial advisory boards of two journals. He is currently Leader of the High Temperature Materials Laboratory’s Tribology Research User Center and Awards Chair of the Oak Ridge Chapter of ASM.

Registration (Guests Welcome!)

Cost: \$20; Season pass: \$75

Students: Free if RSVP by Jan. 15th;
\$5 if RSVP late

RSVP by noon on Friday Jan. 15th

Contact: Jun Qu

(865)-576-9304 or qujn@ornl.gov

Rothchild’s Conference Center

8807 Kingston Pike
(865) 690-0103

Thursday, January 21st

Schedule

5:30 pm– Social Hour

6:30 pm– Dinner

7:30 pm– Talk

Oak Ridge Chapter of ASM International
2009-2010 Technical Calendar

MARK YOUR CALENDAR !

February 18th: Industry Night

March 25th: Past Chair's Night
Janice L. Musfeldt, University of Tennessee
"Optical properties of iron oxides:
Light harvesting in the new iron age"

@ Rothchild Catering Center

April TBA: Educational Symposium

May 20th: Awards Night
Rogelio Sullivan - tentative
"Future Renewable Electric Energy Delivery and Management"

@ Rothchild Catering Center