

Ali Erdemir

Argonne National Laboratory
Energy Systems Division
9700 South Cass Avenue, Building 212
Argonne, IL 60439
phone: 630/252-6571, fax: 630/972-5568
e-mail: erdemir@anl.gov

Professional Experience

- **Present.** Argonne National Laboratory
 - More than 25 years of extensive research work and experience in the areas of surface engineering, tribology and lubrication, primarily directed toward the development of fuel-efficient and environmentally-friendly transportation systems, multi-functional nanocomposite coatings, nanolubrication and superlow friction materials and coatings
 - Pioneered development of
 - Nearly frictionless carbon films,
 - A series of boron-based nanolubricants, and
 - Superhard coatings for severe tribological applications.
 - Directed and conducted fundamental and applied research on solid lubricants and surface engineered tribomaterials

Recent Research Activities

- Friction and wear of multifunctional nanocomposite and nanostructured nitride, carbide and boride coatings
- Fundamental tribological mechanisms of diamond, diamond like carbon and carbide-derived carbons
- Tribochemistry
- Implant materials and coatings
- Boriding
- Design and synthesis of novel materials and coatings providing superlow friction and wear

Education

- PhD, Materials Science and Engineering, Georgia Institute of Technology, 1986
- MS, Materials Engineering, Georgia Institute of Technology, 1982
- BS, Metallurgy, Istanbul Technical University, 1977

Professional Society Activities

- Director, Society of Tribologists and Lubrication Engineers (STLE), 2005 to present
- Chair, Technical Exposition Committee, American Society of Mechanical Engineers (ASME) -Tribology Division, since 2006

- Chair, Executive Committee, ASME-STLE International Joint Tribology Conference, 2007-2009
- Member, Executive Committee, American Vacuum Society (AVS), Advanced Surface Engineering Division, 2003 to present
- Member, Executive Committee, ASME-Tribology Division, 2006 to present.
- Chair, Awards and Honors Committee, ASME - Tribology Division, 2006
- Guest Editor, Proceedings of the International Conference on Metallurgical Coatings and Thin Films, San Diego, California, 2006-2008
- Member, Executive Committee, International Conference on Metallurgical Coatings and Thin Films, since 2006
- Member, Research Committee on Tribology, ASME-Tribology Division, 1995-2003
- Trustee and Member, Executive Committee, STLE-Chicago Section, 2003 to 2006
- Program Chair, World Tribology Congress, Washington, D.C., 2005
- Track Organizer and Chair, World Tribology Congress, Kyoto, Japan, 2009
- Chair, 2001 STLE Annual Meeting Program Committee, Orlando, May 20-24, 2001
- Symposium Chair, Tribological Coatings/Surface Modifications, International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, 1996 to 2004
- Symposium Chair, AVS-Advanced Surface Engineering Division, 2007
- Chair, Solid Lubricants Technical Committee, STLE, 1995-1996
- Associate Editor, Tribology Transactions, 1994-1999
- Member, Editorial Board of "Vacuum" - Elsevier
- Member, Editorial Board of "Tribology - Materials, Surfaces and Interfaces" – Maney
- Member, Editorial Board of "Lubrication Science" – Wiley

Honors and Awards

- Four R&D 100 Awards, R&D Magazine (1991, 1998, 2003, and 2009)
- Fellow, Society of Tribologists and Lubrication Engineers (STLE) (2003)
- Fellow, ASM-International (2001)
- Two Al Sonntag Awards, STLE (1992 and 2002)
- Allan A. Manteuffel Award, STLE Chicago Section (2002)
- Distinguished Engineering Alumni Award, Georgia Institute of Technology (2000)
- Innovative Research Award, ASME Tribology Division (1999)
- Director's Award, Argonne (1999)
- Discover Magazine Award (1998)
- Pacesetter Award, Argonne (1998)
- Edmond E. Bisson Award, STLE (1998)
- Honorary Doctorate Degree, Anadolu University; Eskisehir, Turkey (1998)
- National Research Service Award, the National Institute of Health (1986)
- Post-Doctoral Fellowship, Georgia Institute of Technology (1986)

Affiliations

- ASM International since 1982
- American Society of Mechanical Engineers since 1992
- Society of Tribologists and Lubrication Engineers since 1989
- American Vacuum Society since 1999
- Georgia Tech Alumni Association since 1987

Publications & Patents

- 140+ Refereed journal articles in the areas of friction, wear and lubrication of materials and coatings
- 80+ Plenary, keynote and invited presentations
- 14 Chapters in various books and handbooks
- 10 U.S. Patents
- 2 Books