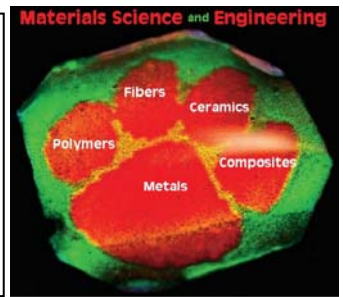


Seminar Series

Sponsored by
School of Materials Science and Engineering
Friday, February 29, 2008
3:30PM – Room 152 Sistine Hall



S.K. Sundaram - A Profile In Excellence

Chief Materials Scientist - Pacific Northwest National Laboratory



Title: **Millimeter/THz Wave Diagnostics of Materials, Processes, and Devices**

Abstract:

Millimeter/THz wave regime is ideally suited for diagnosing materials, processes, and devices, especially under extreme/constraining environments. Major advantages of this regime are 1) wavelengths are long-enough to penetrate smoke, fog, dust, and other scattering media on the way, 2) wave lengths are short-enough, these waves can be focused and propagated using quasi-optics, and 3) optical quality surfaces and components are not needed. Additionally, new physics/chemistry/biology in these regimes are yet to fully explored. An overview of unique capabilities and the progress made in PNNL will be presented.

Bio:

Educational Background: Ph. D. Georgia Institute of Technology, Atlanta, 1994; M. Tech. Indian Institute of Technology, Kharagpur, India, 1986; A. I. I. Ceram. Indian Institute of Ceramics, Calcutta, India, 1983

ACerS Involvement & Honors:

Member, Secretary, Treasurer, meetings co-chair, meetings chair, Division co-chair, Division Chair, MS&T2006 ACerS meetings chair, MS&T2008 overall chair, and several volunteer committee activities in the Nuclear & Environmental Technology Division (N&ETD), Committee of International Ceramic Congress 1 (ICC) and ICC2
Organized/co-organized several symposia, presented papers, gave invited talks, and chaired sessions
Best Technology Paper award of NETD, 2001

Employment:

Dr. Sundaram, a Materials Scientist, joined the Pacific Northwest National Laboratory first in 1994 as a post-doctoral fellow and then as a Senior Research Scientist in 1996. He became Chief Materials Scientist in January 2002. He has more than 12 years of scientific, technical, and managerial experience in interdisciplinary glass/ceramics/materials research since his doctoral degree. Prior to joining PNNL, Dr. Sundaram was a Research Assistant at the Georgia Institute of Technology (1992-1994) and the New York State College of Ceramics, Alfred University (1990-1992). Dr. Sundaram was also a Research Engineer in Tata Research, Development, and Design Centre, Pune, India (1987-1990) and a technical staff member in the Materials Research Centre, Indian Institute of Technology, Kharagpur, India (1979-1987).

Accomplishments in Ceramic Science and Engineering:

Dr. Sundaram's major contributions include: 1) developed advanced chalcogenide/chalcopyrite glasses for remote chemical sensing and nuclear detection, respectively, 2) invented millimeter wave diagnostic tools for vitrification nuclear wastes and other processing applications 3) advanced FTIR-based rapid screening technique for screening toxicity of nanomaterials, including silica.

He has won numerous awards and honors, including two R&D100 awards. He has held visiting appointments at Harvard, MIT, and Princeton. As an AAAS Fellow, he was honored for his "leadership and innovative contributions to a diverse cross-section of materials sciences, particularly new tools for synthesis and characterization of novel materials, diagnostics, and nanomaterials." He has made over 80 technical presentations, edited/contributed to 9 books, published over 75 peer-reviewed publications and technical reports, mentored/supported over 30 students, and organized/co-organized several national and international symposia on advanced topics in materials science.