

BOISE STATE UNIVERSITY

Darryl Butt

Distinguished Professor and Associate Director for CAES
Materials Science & Engineering — Professor and Chair

Dr. Darryl P. Butt is a professor and chair of Materials Science and Engineering at Boise State University, and an associate director of the Center for Advanced Energy Studies (CAES) in Idaho Falls.

Butt held several positions at Los Alamos National Laboratory between 1991 and 1999. As a postdoctoral fellow he studied very high temperature hydrogen-solid reactions and thermodynamics of transition metal and actinide carbides. This work included developing planar laser induced fluorescence methods for characterizing and directly imaging plasmas produced during laser ablation processes, modeling gas-solid reactions, and modeling of binary, ternary and quaternary phase diagrams. In 1994 he established the Materials Corrosion and Environmental Effects Laboratory within the Materials Science and Technology Division, where as a team leader, he lead efforts in a variety of areas including aqueous and high-temperature oxidation of ceramics, alloys and protective coatings, radiation effects on materials corrosion, gallium vaporization, sequestration of carbon dioxide and development of high-temperature materials and seals, and carbon dioxide sequestration. In 1998, Butt became the project leader for Weapons Dismantlement and Fissile Materials Transparency where he managed and oversaw technical efforts and policy development related to a possible START III treaty and Russian-U.S. lab-to-lab technical interactions in nuclear nonproliferation. From 1998-2000, on leave from LANL, Butt lead an \$85 million DOE-industry program at Ceramatec, Inc., in collaboration with Air Products and Chemicals Co. to develop microchannel gas separation membranes for the production syngas from natural gas. His research led to a number of key patents in the field. From 2000-2005, Butt was an associate professor at University of Florida in the Department of Materials Science and Engineering with close collaborations with the Department of Nuclear Engineering and Radiological Science.

Education

Ph.D., Ceramic Science, Pennsylvania State University

Bachelor of Science, Ceramic Science and Engineering with a minor in Technical Writing, Pennsylvania State University

Research

- Ceramics, graphite and high-temperature materials
- Synthesis of powders and novel structures
- Modeling and measurement of thermodynamics and kinetics
- Materials processing and structure-property relations
- Nuclear fuels and materials
- Corrosion and materials durability
- Failure analysis, brittle fracture and failure
- Novel methods of joining
- Environmentally friendly coatings
- Carbon dioxide sequestration
- Ion transport membranes

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