



American Institute of
Aeronautics and Astronautics
Dayton-Cincinnati Section

Lunch 'n' Learn

TURBOMACHINERY EROSION IN GAS TURBINE ENGINES

Friday 24 July 2009

Guest Speaker: Dr. Atawef Hamed

Solid particle erosion problems are encountered in gas, steam, and coal fired turbine engines. The suspended particles in the flow field can be produced in the combustion process, or can result from the ingestion of sand, dust, or volcanic ash by the airbreathing engines. Particle erosion causes aerodynamic performance deterioration, loss of thermal protection, and reduction of engine operating life.

In this talk, analytical and experimental techniques for simulating blade material and coatings erosion will be outlined. Examples will be presented for different compressors and turbines and the associated particle dynamics will be compared for various applications. Finally the associated loss of performance will be discussed and means of engine performance retention and life extension will be described.

Dr. Atawef Hamed is Department Head and Bradley Jones Professor of Aerospace Engineering at the University of Cincinnati. She is the Director of the State's Intelligent Propulsion System, and has over thirty years' research experience in gas turbine engine erosion and in Supersonic Intake and Exhaust Systems. She is a Fellow of both AIAA and ASME, Editor of the International Journal of Computational Fluid Dynamics, and Executive Secretary of the International Society of Airbreathing Engines (ISABE). Professor Hamed is the recipient of the 2009 AIAA J. Leland Atwood Award for Aerospace Educator Excellence. At the University of Cincinnati, she teaches Advanced Propulsion and Engine Design, and was advisor to seven winning Senior Engine Design teams in AIAA competitions.

Time

11:45 AM

Location

China Garden Buffet
112 Woodman Dr.
Dayton, OH 45431

Lunch

You will be able to
purchase the buffet

