

Friday, March 23, 2012
NUCLEAR THERMAL PROPULSION: NTP FUELS II
10:30 a.m. Waterway Ballroom 2

Chairs: **Jonathan Webb** (Idaho National Laboratory)
 Stan Borowski (NASA Glenn Research Center)

- 10:30 a.m. Cavender D. P. * Mireles O. R. Broadway J. W.
 [*Design of A Uranium-Dioxide Plasma Spheroidization System*](#) [#3041]
 UO₂ Plasma Spheroidization System is NASA's first major process in the development of NTR fuel
 cermets. Processed powders show significant improvement in mechanical properties and surface
 morphology for eventual CVD coating.
- 10:50 a.m. Mireles O. R. * Broadway J. W. Hickman R. R.
 [*Development of a Fluidized Bed CVD System for Coating UO₂ Particles with Tungsten*](#) [#3021]
 Nuclear thermal propulsion (NTP) is under consideration for use in deep space exploration.
 Tungsten-UO₂ cermet fuel forms require UO₂ powders coated with tungsten to improve fuel
 properties. This paper details the development of a chemical vapor deposition (CVD) system.
- 11:10 a.m. Valentine P. G. * Allen L. R. Shapiro A. P.
 [*Advanced Ceramics for Use as Fuel Element Materials in Nuclear Thermal Propulsion Systems*](#) [#3026]
 A variety of ceramic materials, primarily carbides, are being considered for use in the fabrication of
 two of the three fuel element designs being considered under the NASA NCPS Program — the
 graphite composite and the advanced carbide approaches.
- 11:30 a.m. Moran R. P. * Emrich W. J.
 [*Modeling and Simulation of a Nuclear Fuel Element Test Section*](#) [#3050]
 The Nuclear Thermal Rocket Element Environmental Simulator (NTREES) test section closely
 simulates the internal operating conditions of a thermal nuclear rocket. An extensive thermal fluid
 analysis was performed in support planned upgrades to NTREES.