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]
UO$_2$ Plasma Spheroidization System is NASA’s first major process in the development of NTR fuel cerments. 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 UO$_2$ Particles with Tungsten [#3021]
Nuclear thermal propulsion (NTP) is under consideration for use in deep space exploration. Tungsten-UO$_2$ cermet fuel forms require UO$_2$ 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 (NTRES) 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 NTRES.