

# NETS 2012

Nuclear and Emerging Technologies for Space

### March 21-23, 2012 • The Woodlands, TX

Held in conjunction with the



43<sup>rd</sup> Lunar & Planetary Science Conference • March 19-23, 2012

## CALL FOR PAPERS

Extended Abstract Submissions Due: November 17, 2011



Author Notification: Dec. 8, 2011 • Final Revisions Due: Dec. 22, 2011

http://anstd.ans.org/NETS2012.html

Sponsored by the Aerospace Nuclear Science and Technology Division of the American Nuclear Society and the Universities Space Research Association/Lunar and Planetary Institute

#### **About the Meeting**

In March 2012 the Aerospace Nuclear Science and Technology Division (ANSTD) of the American Nuclear Society (ANS) will hold the 2012 Nuclear and Emerging Technologies for Space (NETS 2012) topical meeting in The Woodlands, TX. The year 2012 will mark completion of the first 50 years of nuclear-powered spaceflight, which began with launch of the Transit 4A satellite in June of 1961. In honor of this occasion, NETS 2012 will be held in conjunction with the 43<sup>rd</sup> Lunar and Planetary Science Conference (http://www.lpi.usra.edu/ meetings/lpsc2012/). Nuclear power has been an enabling technology for the most ambitious planetary missions in history. Holding the meetings together will allow the science community to learn more about the latest developments in nuclear power and propulsion, and to see how new technologies could help their exploration efforts in the future.

#### **Topic Areas**

NASA is currently developing capabilities for robotic and crewed missions to the Moon, Mars, and beyond. Strategies that implement advanced power and propulsion technologies, as well as radiation protection, will be important in accomplishing these missions in the future. NETS serves as a major communications network and forum for professionals and students working in the area of space nuclear technology. Every year it facilitates the exchange of information among research and management personnel from government, industry, academia, and the national laboratory system. To this end, the NETS 2012 meeting will address topics ranging from overviews of current programs to methods of meeting the challenges of future space endeavors.

#### **Track 1: Mission and Architectures**

- $\cdot$  Space Science Missions
- · Exploration Missions
- · Spacecraft Concepts
- · Lunar and Planetary Surface Concepts
- · Mission Analysis and Validation Missions
- $\cdot$  Space Radiation Environment & Protection
- Space Policy

#### **Track 2: Fission Power and Propulsion**

- · Reactor Module and Shield Design
- $\cdot$  Power Conversion Systems and Components
- Supporting Technologies
- (inc. Heat Rejection and Power Management and Distribution) • Reactor Simulation
- $\cdot$  Tools and Modeling
- · Testing and Validation
- · Materials and Radiation Testing
- · Nuclear Electric Propulsion Systems
- · kWe-class Reactors
- · Ultra-high Performance Fission Systems

#### Track 3: Radioisotope Power Systems (RPS)

- Plutonium-238 Production
- Thermal Systems Management
- Energy Conversion Thermoelectric Systems and Components
- · Energy Conversion Stirling Systems and Components
- · Flight Systems Mission Performance
- · Advanced Systems and Performance Analyses
- · Mission Concepts Enabled by RPS

#### Track 4: Nuclear Thermal Propulsion (NTP)

- $\cdot$  NTP History
- · Fuel Development
- · Design Concepts
- · System Integration
- $\cdot$  Tools and Modeling
- $\cdot$  Testing and Validation

#### **Track 5: Advanced Concepts**

- · Multi-Megawatt Power Systems
- · Fusion and Hybrid Nuclear Processes