November 2026

SUBJECT: Fission Instrumentation & Controls for Space (FICS) - Special Track at ANS NETS 2027 Conference

Dear Colleague,

The American Nuclear Society is hosting the **Fission Instrumentation and Controls for Space (FICS)** Special Track at the 2027 Nuclear and Emerging Technologies for Space (NETS) Conference in Cleveland, Ohio, May 2-5, 2027. **You are cordially invited to participate and to optionally share a presentation at this 2nd FICS forum.** The FICS Special Track date during the conference will be announced later.

Industry – Small Business – Academia – Government Agencies

Your pointed participation and state-of-the-art knowledge associated with instrumentation and controls (I&C) in nuclear, aerospace, or other extreme industrial applications are crucial for the advancement of these technologies. There is a broad-scope necessity for nuclear technologies in space, across multiple sectors. Industry support and public-private partnerships are vital to NASA's missions in **Powering Moon Base** for a permanent human presence, for **Exploration with Nuclear Propulsion**, and in the advancement of capabilities for **Microreactor technologies at large**.

Near-future I&C hardware includes sensors, signal condition electronics, actuators, data acquisition, and avionics. This hardware must be radiation-hardened, tolerant to high and low temperature extremes, long-lived and highly reliable without maintenance. Additional requirements include survival against space launch and exposure, unusual chemical environments, and should be delivered with low Size, Weight, and Power (low-SWaP). The requirements of **robustness, compactness**, and **reliability** drive this cross-cutting effort to adapt and develop new I&C technologies that enable acceleration of space nuclear capabilities.

FICS Special Track - Objectives

This in-person only forum has three objectives:

1) Identify reference mission applications and stakeholders for Fission I&C in Space:
   Fission Surface Power (FSP), Nuclear Thermal Propulsion (NTP), Nuclear Electric Propulsion (NEP)
   Low, Mid, & High-power - Moon, Mars, & Beyond
   Stakeholders: NASA – DOE – DOW – Industry – International

2) Identification and communication of I&C gaps:
   What is needed: Hardware – Control logic – Test capability
   When is it needed: Near-term – Mid-term – Long-term

3) Survey FICS Special Track community and strategize to close real and perceived I&C gaps:
   Who: Large and Small Business, Academia, Government (*People/POCs)*
   What: Existing technology; Technology in work; Development and Test capability
   How: Contracting, Collaboration, Partnerships

Discussions on advancing specific instrumentation (sensors, electrical systems) and controls (actuators, autonomous, software) will take place as we tackle the objectives. We will also be seeking feedback from all participants about how best to move forward and continue engagement. **The FICS Special Track at NETS 2027 is an opportunity to grow and strengthen this mission-critical community as we advance to the next generation of nuclear-powered space exploration!**

Intended Audience
Space nuclear instrumentation & controls manufacturers, supply chain providers, and users across industry, small business, academia, and government.

FICS Special Track - Date and Location
May 2-5, 2027 – *(specific date/time to be announced)*
Huntington Convention Center
Cleveland, OH

FICS Special Track - Paper Submission (lightning talk &/or full)
Abstracts, Lightning Talks &/or Full Papers – Initial Submission **Due Date: 11/06/26**
ANS has extended the due date. Lightning Talks &/or Full Papers **MUST be completed by: 12/04/26.**

All paper submissions are via NETS 2027 website: https://www.ans.org/meetings/nets2027/
All selected papers will be included in the NETS 2027 Proceeding.

Only non-export-controlled material may be submitted. Topics include instrumentation (sensors, electrical systems) and controls (actuators, autonomous, software) for fission reactor systems relevant to space.

FICS Special Track - Attendance
You MUST register for the NETS 2027 Conference to attend the FICS Special Track via NETS 2027 website: https://www.ans.org/meetings/nets2027/
When registering for the NETS Conference, there may be a selection button asking if you are interested in the FICS Special Track and please be on the lookout for a link to Pre-Special Track materials.
A FICS Special Track representative will reach out to those who opted to share a Lightning Talk or Paper.
Please Note: NETS 2027 Conference registration will open ~Jan-Feb 2027.

We hope that you will participate in this vital opportunity which will bring everyone closer to developing fission I&C technologies for space and at large!

And please, don't hesitate to forward this Invitation Letter to other U.S. colleagues who may be interested.

Cordially, from your 2nd Fission Instruction and Controls for Space (FICS) Executive Committee:

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