



DEPARTMENT OF DEFENSE
UNITED STATES SPACE COMMAND
150 Vandenberg Street, Suite 1105
Peterson SFB, CO 80914

MEMORANDUM FOR RECORD

25 November 2025

FROM: USSPACECOM/J7

SUBJECT: United States Space Command 2026 Academic Experimentation Partnership

United States Space Command (USSPACECOM) is actively seeking academic institutions to collaborate on experimentation that will shape the future of the space domain. As the space environment rapidly evolves due to the convergence of civil, military, and commercial interests, there is a critical need to leverage innovative academic thinking and capabilities. These partnerships will provide opportunities for universities and colleges to conduct joint experimentation, contributing directly to the strengthening of our national space capacity, expertise, and technologies. USSPACECOM is dedicated to connecting with academic partners and looks forward to engaging with interested institutions to identify and facilitate these experimental collaborations throughout 2026 and beyond.

For this initiative, experimentation efforts will involve exploration limitations and characteristics of novel concepts, advanced technologies, and innovative operational approaches within the space domain to expedite these capabilities for future employment. USSPACECOM is interested in partnering with academic institutions to collaboratively design and execute these experimental efforts. We seek to leverage the unique research capabilities, analytical rigor, and fresh perspectives of academia to rigorously test hypotheses, gather critical data, find causal relationships, and validate solutions. Such partnerships are vital for enhancing and accelerating space applied research and fostering disruptive innovation, ultimately strengthening our collective ability to address evolving challenges in space. The following focus areas have been identified as broad categories of particular interest to the command:

- SDA (Space Domain Awareness). Advanced sensor integration, real-time data fusion, AI/ML for threat identification and intent assessment. Experimentation with novel sensing modalities and predictive analytics for unknown objects/activities. Space-based persistent sensing for early warning (ballistic/hypersonic threats), dynamic multi-domain C2, resilient layered defense architectures. Testing of emerging defensive countermeasures and adaptive response capabilities.
- SATCOM (Satellite Communications). Assured and resilient communications in contested/congested environments. Adaptive waveforms, dynamic spectrum management, jam/spoof/cyber resistance. Interoperability across diverse constellations, multi-path routing, optical comms. Experimentation with disruptive communication architectures (e.g., quantum communication, meshed networks) and advanced on-board processing for autonomous operations.
- GPS (Global Positioning System). Enhanced GPS resilience: Advanced anti-jam/anti-spoof technologies. Robust navigation solutions in GPS-denied/degraded

environments. Improved precision/accuracy for military applications. Seamless integration of alternative PNT sources. Testing of novel signal structures and authentication methods to enhance integrity and security.

- PNT (Positioning, Navigation, and Timing). Resilient, assured, and precise PNT beyond GPS. Alternative PNT sources: Celestial navigation, quantum sensing, terrestrial networks, LEO PNT, Inertial Navigation Systems. Multi-source PNT fusion algorithms for seamless transitions and integrity. Miniaturized, hardened PNT technologies for contested scenarios. Exploration of entirely new PNT generation concepts and their integration into existing systems.
- On-Orbit Logistics to Enhance Maneuver. Extend spacecraft operational lifespan and enhance maneuverability. Standardized refueling interfaces, advanced autonomous RPOD (Rendezvous, Proximity Operations, and Docking). Economic/logistical models for sustainable in-space refueling infrastructure. Experimentation with alternative propellant transfer methods, in-space resource utilization for propellant generation, and advanced robotics for complex in-orbit servicing.
- Protect and Defend Space Assets: Dynamic capabilities ensuring the integrity, functionality, and sustainability of space assets against a spectrum of hazards, anomalies, and interference. On-board, real-time multi-sensor detection and classification of threats (e.g., debris, interference, cyber intrusions). Autonomous protective maneuvers (e.g., collision avoidance, evasive action) and active mitigation technologies (e.g., adaptive shielding, debris remediation, interference reduction). Self-healing and reconfigurable architectures provide redundancy and adaptability. AI-driven response for mission re-planning and resource allocation post-disruption. End-to-end cybersecurity and data integrity assurance with resilient command and control. Experimentation includes novel protection/remediation technologies, collaborative space traffic management, quantum-safe encryption, and human-machine teaming for comprehensive risk assessment.

USSPACECOM invites academic institutions to submit concise abstracts detailing ongoing research efforts or desired experimentation opportunities. We are particularly interested in technology prototypes currently under development, rather than nascent concepts, that demonstrate clear potential for application within the space domain. Submissions should be a focused 1–2-page document, outlining the technology prototype, its current experimentation plan or anticipated milestones over the next 12–18 months, and a compelling vision for how the technology could be adapted or leveraged for dual/military use within our defined areas of interest, as well as any applicable organizational partnerships involved in the design or experimentation of the technology. Optional image attachments, such as diagrams or project photos, are welcome to enhance the clarity of your submission but must be submitted by email.

Please use the following link for all submissions
<https://forms.osi.apps.mil/r/jsgbLRzmay>. Deadline for submissions is January 15, 2026.

The point of contact for this action is Major Candice Farney, USSPACECOM/J791
Branch Chief, 719-552-7738, candice.farney@usspacecom.mil.

SAMUEL C. KEENER
Major General, USAF
Director, Joint Exercises & Training