



NASA EPSCoR CAN Rapid Response Research (R3) Announcement Request for Proposals

NASA has issued a Cooperative Agreement Notice (CAN) Rapid Response Research (R3) announcement for the FY 2021 EPSCoR program. Delaware has an opportunity to submit one proposal for each participating NASA office by February 5, 2021. Unless otherwise indicated, proposals must be two to three pages in length for potential funding under this CAN. Twenty awards are expected across EPSCoR states, up to one year and \$100,000 each, with no cost share requirement.

Proposals must address one of the specific NASA research topic areas listed on the following amended pages. For additional details, please locate the full solicitation NNH21ZHA002C at [FY2021 Rapid Response Research](#).

Proposal evaluations will begin on November 30, 2020. One proposal for each participating NASA office will be submitted *as suitable proposals are identified*. Due to NASA regulations in this Rapid Response program, time is of the essence!

Please submit your two to three page proposal, clearly indicating the NASA office, label number, and the research topic it addresses, to desgc@bartol.udel.edu.

Thank you,

William H. Matthaes
Director, NASA Delaware EPSCoR

APPENDIX	LABEL	RESEARCH TOPIC
Appendix A: NASA SMD Planetary Division (p.18)	A1	High-Temperature Subsystems and Components for Long-Duration (months) Surface Operations (p.18)
	A2	Aerial Platforms for Missions to Measure Atmospheric Chemical and Physical Properties (p.18)
	A3	Extreme Environment Aerobot (p.19)
Appendix B: Commercial Space Capabilities Office (p.21)	B1	Renewals can only be proposed for CSCO selections from Fall 2019 (RAPID RESPONSE RESEARCH – CYCLE 2) selections: 18-EPSCoR R3-0022, 18-EPSCoR R3-0025, 18-EPSCoR R3-0034, 18-EPSCoR R3-0040, 18-EPSCoR R3-0053, 80-EPSCoR R3-0057, and 18-EPSCoR R3-0058 (p. 21)
	B2	Improvement of Space Suit State of Art (p.23)
Appendix C: SMD Earth Sciences Division (p. 25)	C1	Remote sensing of water quality (p. 25)
Appendix D: NASA SMD Biological and Physical Sciences (BPS) p. 27	D1	Quantum Science (p. 27)
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	D3	Foam Evolution and Stability (p. 29)
	D4	Crop Plant Stress Tolerance for Space Exploration (p. 30)
Appendix E: KSC Exploration Systems and Development (p. 32)	E1	Gas Separation for Sabatier Reactor and other systems (p. 32)
	E2	Need improved VOC scrubbing techniques (Amendment 1)
	E3	Spaceflight-compatible Recycling of non-edible Biomass (Amendment 1)
	E4	Pressure level effects on plant physiology for spaceflight candidate crops (Amendment 1)
	E5	Improving Ethylene Sensor Technology for Space Crop Production (Amendment 1)
	E6	Seed Handling Approaches for Space Crop Production (Amendment 1)
Appendix F: NASA SMD Computational and Information Sciences and Technology Office (CISTO) (p. 33)	F1	CISTO Artificial Intelligence and Machine Learning (AI/ML) Modeling and Development Hackathons (p. 33): Proposal identifies senior experts
	F2	CISTO Artificial Intelligence and Machine Learning (AI/ML) Modeling and Development Hackathons (p. 33): Proposal partners with CISTO POC
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	H2	Treatment using drug(s) or mechanical devices which lowers intracranial pressure and CSF fluid in the brain (p. 46)

APPENDIX	LABEL	RESEARCH TOPIC
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	I2	Additive manufacturing (AM) of ceramic matrix composites (CMCs) for liquid rocket engine components (p. 47)
	I3	Lunar Surface Sustainability Through Dust Resistance Materials (p. 47)
	I4	Next Generation Adhesives for Advanced Cryogenic Applications (p. 47)
	I5	Development of three-directional (3D) carbon fiber reinforced composites for rocket nozzle extensions and/or combustion chambers (p. 47)
	I6	Modeling of Manufacturing Processes in Micro and Reduced Gravity Environments (p. 48)
	I7	AM In-Situ Monitoring Data Analysis and Correlation for NDE of Part Quality (p. 48)
	I8	Enhanced Welding and Printing of Next Generation Refractory Metals and Alloys (p. 48)
	I9	Physical Effects of In-Space Environment on High Energy Density Welding (p. 48)
	I10	In Space Metal Recycling Techniques (p. 48)
	I11	Computational Approaches to Understand Shape Memory Ionic Polyimides for AM (p. 48)
	I12	In-Situ In-Space and Additive Manufacturing and welding/Joining Mechanical Properties by Non-Destructive Ultrasonic Evaluation (p. 49)
	I13	Large Scale Additive Construction Technologies (p. 49)
	I14	A Combined Machine Learning/AI and Testing and Characterization Materials Discovery of NASA Relevant Light weight, Super-Alloys and Refractory Alloys: Connecting Microscopic Electronic & Thermodynamical Alloy Properties to Macroscopic Alloy Mechanical Properties Predictively (p. 49)
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