



# Delaware Established Program to Stimulate Competitive Research (EPSCoR)

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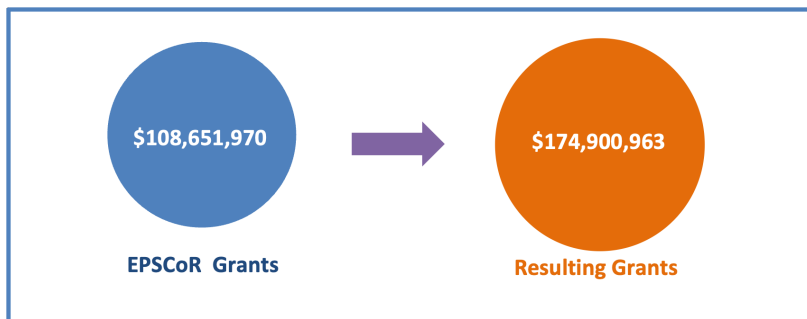
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## Collaborative Research: RII FEC: Risks, Impacts, & Strategies for Coastal Communities: Advancing Convergent Science to Support Climate Change Adaptation & Resilience

Coastal communities face growing and compounding risks that are exacerbated by the effects of climate change and sea-level rise. With nearly twice the global rates of sea-level rise, the U.S. Atlantic seaboard is particularly vulnerable with some communities disproportionately affected. A recent NSF EPSCoR Research Infrastructure Improvement-Focused EPSCoR Collaborations (RII-FEC) award brings together researchers and community stakeholders from three EPSCoR jurisdictions representing the lowest-lying states in the country: Delaware, Rhode Island, and South Carolina to empower disproportionately affected communities to make effective and inclusive adaptation decisions that support long-term climate resilience to threats of flooding and salinization in all three states and beyond. The collaborative team includes researchers across the three states with complementary expertise in economics, hydrology, geospatial sciences, engineering, public policy and planning, community engagement, and education and workforce development.

### Overall Funding Since 2003: \$284 Million\*

The NSF/NASA/DOD/DOE/EPA/USDA EPSCoR programs and the State of Delaware have provided \$109 million in direct EPSCoR funding to Delaware to support capacity building. The support has resulted in an additional \$175 million in funding for 338 awards to EPSCoR faculty including \$118M for 229 research awards; \$19M for 7 center awards; \$17M for 46 education awards; \$15M for 38 CAREER awards; \$4M for 8 equipment awards; and \$2M for 10 innovation awards.



## Program Overview

Delaware was designated an EPSCoR state in January 2003. The University of Delaware, Delaware State University, Delaware Technical & Community College and Goldey-Beacom College are partners in Delaware EPSCoR.

### Three main goals drive Delaware's EPSCoR program:

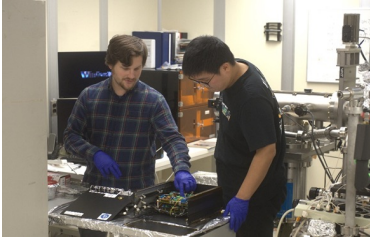
- Engage science, engineering, economics and policy experts in a vibrant, globally competitive, research and education community in Delaware
- Develop a new and diverse generation of science, technology, and policy experts through targeted education programs, engaging public audiences, and building capacity for the communication of science and policy.
- Focus on long-term sustainability, building competitive research teams, and integrating new initiatives into the research and educational fabric of our institutions and state.



# Success Stories



Researchers deposit cadmium telluride thin films to understand how the controlled incorporation of parts-per-million additional elements can improve their electronic properties in solar cells.



Delaware researchers focus on developing radiation hard devices using GaN wide bandgap materials for Climate Change Predictions

## DOE EPSCoR

A team from the Institute of Energy Conversion and the Department of Materials Science and Engineering at the University of Delaware is investigating the fundamental science behind approaches to control the electronic properties of critical materials used in thin film solar cells. The research is developing manufacturing-compatible methods to enhance the efficiency of solar cells for higher power output leading to lower cost of electricity. The project will enhance the university's collaboration with DOE National Labs through a partnership with the National Renewable Energy Lab while developing capabilities and a pipeline to future research in Delaware.

## NASA EPSCoR

A team from the University of Delaware are looking at the radiation robustness of GaN high electron mobility transistors in space by performing the in-flight device performance characterization on the International Space Station (ISS). Once transistors' design with radiation robustness is established, the devices will be incorporated for W-band power amplifiers for cloud Doppler radar array applications. This will help to provide precise predictions of local climate change, including changes in rainfall for NASA aerosol-cloud-ecosystems missions.

## Statewide Funding: 2024

Program/Grant Name	Type / Institution	FY	Cong Dis.	Amount \$
NSF EPSCoR RII Track 4 (PI: Emil Hernández-Pagán - NSF: 2429792)	Grant/University of Delaware	2024	DE-00	278,606
NSF EPSCoR RII Track-2 FEC (PI: Leah Palm-Forster – NSF: 2418394)	Coop. Agree/University of Delaware	2024	DE-00	1,745,708
NSF EPSCoR Workshop (PI: Frank Schroeder – NSF: 2336900)	Grant/University of Delaware	2024	DE-00	100,000
NSF EPSCoR Co-Funding (PI: Xi Peng- NSF CAREER: 2340074)	Grant/University of Delaware	2024	DE-00	572,756
NSF EPSCoR Co-Funding (PI: Jeffrey Mugridge - NSF CAREER: 2339759)	Grant/University of Delaware	2024	DE-00	820,000
NSF EPSCoR Co-Funding (PI: Tingyi Gu - NSF CAREER: 2338546)	Grant/University of Delaware	2024	DE-00	488,851
NSF EPSCoR Co-Funding (PI: Ulf Schiller - NSF CAREER: 2414458)	Grant/University of Delaware	2024	DE-00	399,544
NSF EPSCoR Co-Funding (PI: Matthias Jungfleisch- NSF CAREER: 2339475)	Grant/University of Delaware	2024	DE-00	399,379
NSF EPSCoR Co-Funding (PI: Mark Blenner - NSF: 2400302)	Grant/University of Delaware	2024	DE-00	2,000,000
NSF EPSCoR Co-Funding (PI: Sunita Shah Walter - NSF: 2342979)	Grant/University of Delaware	2024	DE-00	201,558
NSF EPSCoR Co-Funding (PI: Curtis Johnson – NSF: 2331296)	Grant/University of Delaware	2024	DE-00	236,425
NSF EPSCoR Co-Funding (PI: Gonzalo Arce – NSF: 2404740)	Grant/University of Delaware	2024	DE-00	300,000
NSF EPSCoR Co-Funding (PI: Adam Wallace – NSF: 2400992)	Grant/University of Delaware	2024	DE-00	999,257
NSF EPSCoR Co-Funding (PI: Hakeem Lawal – NSF REU: 2244195)	Grant/Delaware State University	2024	DE-00	419,001
NSF EPSCoR Co-Funding (PI: Joanna York – NSF REU: 2447647)	Grant/University of Delaware	2024	DE-00	355,594
NSF EPSCoR Co-Funding (PI: Chandranath Basak – NSF: 2406582)	Grant/University of Delaware	2024	DE-00	550,417
DOE EPSCoR - (PI: William Shafarnan - DE-SC0025506)	Grant/University of Delaware	2024	DE-00	1,000,000
DOE EPSCoR - (PI: Weiqing Zheng - DE-SC0025378)	Grant/University of Delaware	2024	DE-00	1,000,000
NSF (PI: Christopher Kloxin – NSF:2404305)	Grant/University of Delaware	2024	DE-00	250,000
NSF (PI: Shanshan Ding – NSF:2413833)	Grant/University of Delaware	2024	DE-00	200,000
NSF (PI: Yanfeng Yue – NSF:2421464)	Grant/University of Delaware	2024	DE-00	290,800
NSF (PI: Carolyn Voter – NSF:2425112)	Grant/University of Delaware	2024	DE-00	749,964
NSF (PI: Wilfred Chen – NSF:2428180)	Grant/University of Delaware	2024	DE-00	1,000,000
NASA EPSCoR R3 - Rapid Response Research (PI: John Gizis)	Grant/University of Delaware	2024	DE-00	99,263
NASA EPSCoR - RID Seed (PI: Yin Bao)	Grant/University of Delaware	2024	DE-00	20,999
NASA EPSCoR - RID Seed (PI: Stephanie Cone)	Grant/University of Delaware	2024	DE-00	21,000
NASA EPSCoR - RID Seed (PI: Qi Mu)	Grant/University of Delaware	2024	DE-00	21,000
NASA EPSCoR - RID Seed (PI: Francesco Pecora)	Grant/University of Delaware	2024	DE-00	20,954
Delaware Bioscience Center for Advanced Technology (PI: Yanfeng Yue)	Grant/Delaware State University	2024	DE-00	50,000
DOE (PI: Thomas Epps - DE-SC0014458)	Grant/University of Delaware	2024	DE-00	1,635,791
DOE (PI: Yanfeng Yue)	Grant/Delaware State University	2024	DE-00	475,000
DOE ESTCP (PI: Carolyn Voter - W912HQ24C0019)	Grant/University of Delaware	2024	DE-00	1,541,829
DOD ERDC: (PI: Yan Jin - DOD:W912HZ-24-2-0059)	Grant/Delaware State University	2024	DE-00	2,000,000
USDA NIFA (PI: Mi-Ling Li - USDA: 2024-67018-42448)	Coop. Agree/University of Delaware	2024	DE-00	300,000
USDA NIFA (PI: Cheresse Winstead - USDA: 2024-38427-43463)	Grant/Delaware State University	2024	DE-00	1,920,000

**Total Funds 22,463,696**