Ge-STAR

Germanium-based **S**cience and **T**echnology **A**dvancement **R**esearch

Brianna Mount on behalf of the Ge-STAR project

SURF Higher Education Connections Workshop, November 3, 2025

A statewide partnership of 6 academic institutions, 2 healthcare systems, and industry partners advancing Germanium-based science and technology

WE JUST STARTED!

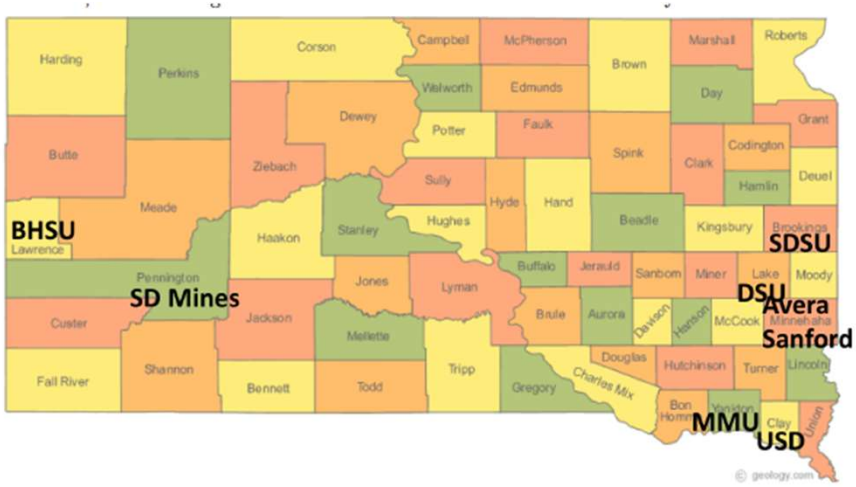
FUNDING STARTED JULY 1, 2025 FOR $7M OVER FOUR YEARS

STRATEGIC PLANNING MEETING WAS HELD AUGUST 22-23, 2025

JUST SUBMITTED STRATEGIC PLAN TO NSF

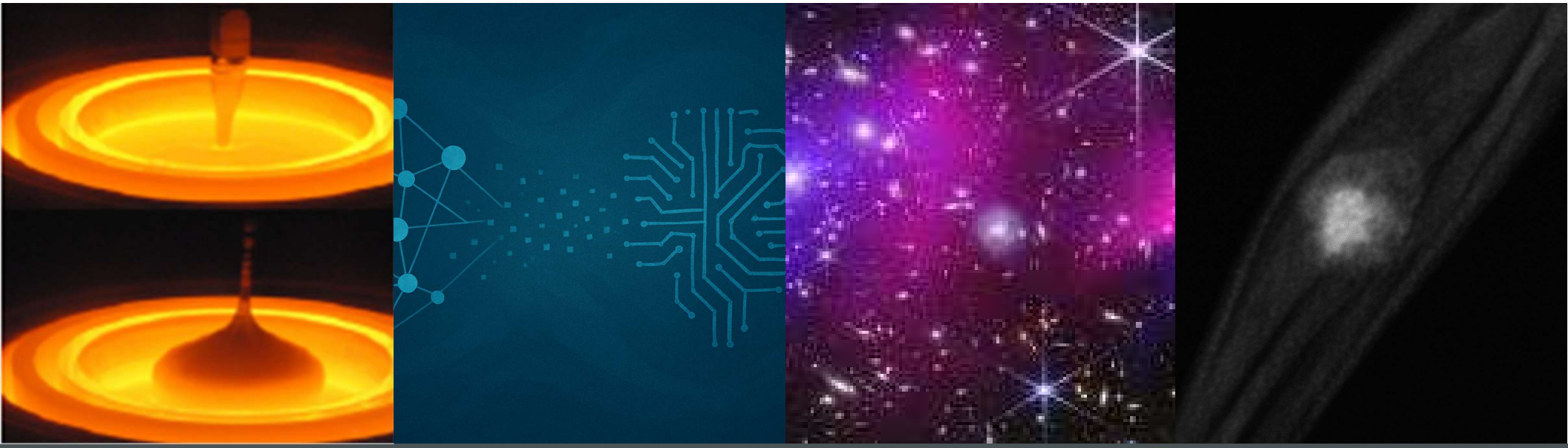
THIS IS A FOUR-YEAR AWARD, WITH THE POSSIBILITY OF RENEWAL FOR THREE FURTHER YEARS

Table 1: List of Participants				
Institution	**Name**	**Gender**	**Title**	**Department/Expertise**
USD	Dongming Mei (PI)	Male	Professor	Physics/Ge-based R&D
	Chaoyang Jiang	Male	Professor	Chemistry/Nanomaterial
	Jing Liu	Male	Associate Prof.	Physics/Detector R&D
	Joel Sander	Male	Professor	Physics/Data Processing
	Carol Lushbough	Female	Emeritus Prof.	Biomedical/Data Science
	Etienne Gnimpieba (URM)	Male	Research Assist. Prof.	Biomedical/Data Science
BHSU	Brianna Mount (co-PI)	Female	Associate Prof.	Physics/Materials Assays
	Ben Sayler	Male	Director/Professor	Mathematics/Education
	Urla Marcus (URM)	Female	Director	American Indian Studies
SD Mines	Xinhua Bai (co-PI)	Male	Professor	Physics/Neutrinos
	Richard Schnee	Male	Professor	Physics/Dark Matter
	Matthias Plum	Male	Assistant Prof.	Physics/Machine Learning
	Juergen Reichenbacher	Male	Associate Prof.	Physics/Detectors
SDSU	Robert McTaggart (co-PI)	Male	Professor	Physics/Simulation
	Michelle Lichtenberg(URM)	Female	Assistant Prof.	Education/Public Health
DSU	Yong Wang (co-PI)	Male	Professor	Computer/Machine Learning
	Ping Gu	Male	Assistant Prof.	Computer/Machine Learning
MMU	Chao Zhang	Male	Associate Prof.	Physics/Simulation
Avera	Mahesh Gopalakrishnan	Male	Director of Oncology	Oncology/Medical Imaging
Sanford	Jason Spaans	Male	Director of Oncology	Oncology/Medical Imaging



PROJECT MEMBERSHIP

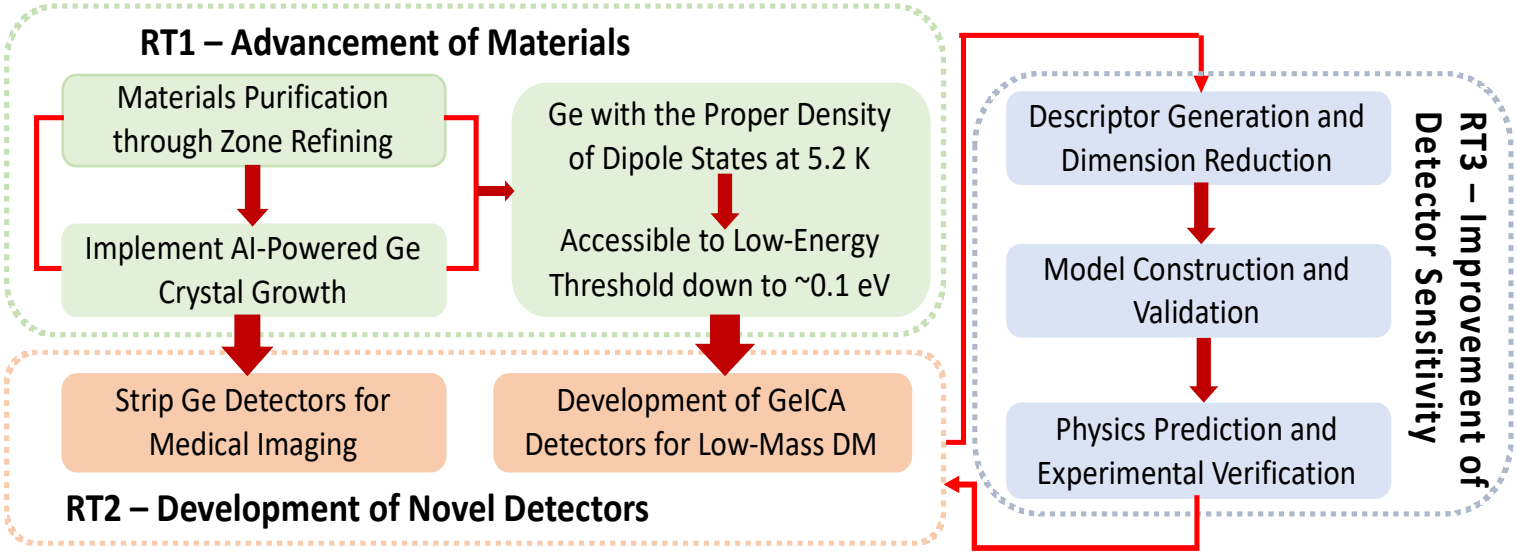
Additionally, two new physics faculty (one at BHSU, one at USD) will be hired this year.



BIG IDEA

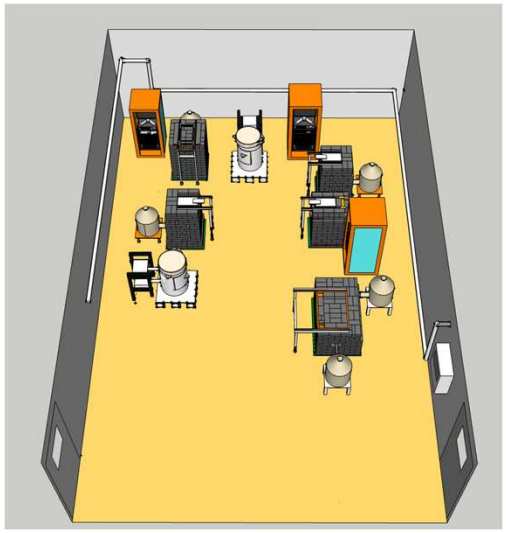
Build on already existing infrastructure, new innovations, and Artificial Intelligence/Machine Learning (AI/ML) to develop germanium detectors for applications in direct dark matter detection and medicine.

THREE RESEARCH THEMES



EDUCATION AND WORKFORCE DEVELOPMENT

- Public outreach activities
- Research experiences and new curriculum for undergrads, k-12 students and teachers
- Mentorship for graduate students, post-docs and early career faculty



CONNECTION TO SURF

- Data from BHUC low background counters will inform simulations
- SURF will be the location of the low-mass dark matter experiment

WE'D LOVE TO COLLABORATE!

We have experts in dark matter, medical physics, materials science, artificial intelligence and more!

We would love to hear your ideas and chat this week! Jing Liu, Richard Schnee and Varghese Vaidyan are also here.

Please contact me (or anyone in the project) to start discussing ideas!

- brianna.mount@bhsu.edu