PI/co-PI/Senior Personnel: Roberts, Amy

PROJECT/PROPOSAL CURRENT SUPPORT

1. Project/Proposal Title: Collaborative Research: Elements: Shared Data-Delivery Infrastructure to Enable Discovery with Next Generation Dark Matter and Computational Astrophysics Experiments

   Proposal/Award Number (if available): 2104003

   Source of Support: NSF

   Primary Place of Performance: CU Denver

   Project/Proposal Support Start Date (if available): 08/2021

   Project/Proposal Support End Date (if available): 07/2023

   Total Award Amount (including Indirect Costs): $335,984

   Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project:

Year	Person-months per year committed
2021	0.34
2022	0.34
2023	0.34

   Overall Objectives: Build data-delivery infrastructure to support mid-scale experiments.

   Statement of Potential Overlap: This infrastructure may be used for data quality shifts.

2. Project/Proposal Title: Better Scientific Software Fellowship Program

   Proposal/Award Number (if available): 2112558

   Source of Support: NSF

   Primary Place of Performance: CU Denver

   Project/Proposal Support Start Date (if available): 04/2021

   Project/Proposal Support End Date (if available): 03/2022

   Total Award Amount (including Indirect Costs): $38,806

   Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project:

Year	Person-months per year committed
2021	0.6

Overall Objectives: Create story-based training materials for version control and build community for version control training.

Statement of Potential Overlap: Participants in the current grant who are developing or maintaining software may use these materials to learn version control concepts and skills.

3. Project/Proposal Title: CyberTraining: Implementation: Small: Enabling Dark Matter Discovery through Collaborative Cybertraining

   Proposal/Award Number (if available): 2017760

   Source of Support: NSF

   Primary Place of Performance: CU Denver

   Project/Proposal Support Start Date (if available): 10/2020

   Project/Proposal Support End Date (if available): 09/2023

   Total Award Amount (including Indirect Costs): $164,716

   Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project:

Year	Person-months per year committed
2020	0.25
2021	0.25
2022	0.25

   Overall Objectives: Create a space for the dark matter community to address common training needs. Create training materials for high-need skills and share these with the community.

   Statement of Potential Overlap: These training materials may be used by participants in this grant.

4. Project/Proposal Title: SuperCDMS SNOLAB Pre-Operations

   Proposal/Award Number (if available): 2012936

   Source of Support: Southern Methodist University/NSF

   Primary Place of Performance: CU Denver

   Project/Proposal Support Start Date (if available): 09/2020

   Project/Proposal Support End Date (if available): 08/2021

Total Award Amount (including Indirect Costs): $205,971

Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project:

Year	Person-months per year committed
2021	1.4

Overall Objectives: PI Roberts' role in this proposal was to support data quality and data acquisition testing and improvement. In addition, she supported development of the data catalog.

Statement of Potential Overlap: None - this funding will end before the proposed funding would start.

5. Project/Proposal Title: CC* Compute: Accelerating Science and Education by Campus and Grid Computing

Proposal/Award Number (if available): 2019089

Source of Support: NSF

Primary Place of Performance: CU Denver

Project/Proposal Support Start Date (if available): 08/2020

Project/Proposal Support End Date (if available): 07/2023

Total Award Amount (including Indirect Costs): $399,938

Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project:

Year	Person-months per year committed
2020	0.25
2021	0.25
2022	0.25

Overall Objectives: Build a cluster that provides free computing to campus researchers, seamlessly integrates with the open science grid, and provides best-in-class support for instructors who want to integrate computing into their courses.

Statement of Potential Overlap: This cluster may provide computing resources to the proposed work.

PROJECT/PROPOSAL PENDING SUPPORT

1. Project/Proposal Title: Using Generalized Adversarial Networks to ensure trusted science results and maximize science reach within the dark matter community

   Proposal/Award Number (if available):

   Source of Support: DOE

   Primary Place of Performance: CU Denver

   Project/Proposal Support Start Date (if available): 09/2023

   Project/Proposal Support End Date (if available): 08/2026

   Total Award Amount (including Indirect Costs): $249,098

   Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project:

Year	Person-months per year committed
2024	0.25
2025	0.25
2026	0.25

   Overall Objectives: (1) Develop Generative Adversarial Networks (GANs) capable of producing synthetic dark matter data useful for estimating bias in analysis and (2) evaluate the use of GAN-generated data in common dark-matter analyses.

   Statement of Potential Overlap: This work overlaps with some of the work proposed in Pending Project (PP) 3. We will withdraw this proposal if PP 3 is funded. PP 2 supports data-taking operations for the SuperCDMS experiment. PP 2 may provide data of interest for this grant; this grant may provide analysis methods of use to the SuperCDMS experiment. Grant A makes dark-matter data more accessible. Project 1 makes it easier for collaborators to access data, a necessary part of the work proposed in this grant.

2. Project/Proposal Title: The SuperCDMS at SNOLAB Operations Program

   Proposal/Award Number (if available):

   Source of Support: NSF

   Primary Place of Performance: Southern Methodist University

   Project/Proposal Support Start Date (if available): 07/2022

   Project/Proposal Support End Date (if available): 06/2025

   Total Award Amount (including Indirect Costs): $717,663

   Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project:

Year	Person-months per year committed
2022	1
2023	1
2024	1

Overall Objectives: Operate the SuperCDMS dark-matter search experiment

Statement of Potential Overlap: The proposed work includes an analysis framework that may be used by the grants "CyberTraining: Implementation: Small: Enabling Dark Matter Discovery through Collaborative Cybertraining" and "CDS&E: Using Generalized Adversarial Networks to ensure trusted science results within the dark matter community.

3. Project/Proposal Title: CDS&E: Using Generalized Adversarial Networks to ensure trusted science results within the dark matter community

Proposal/Award Number (if available):

Source of Support: NSF

Primary Place of Performance: CU Denver

Project/Proposal Support Start Date (if available): 07/2022

Project/Proposal Support End Date (if available): 06/2025

Total Award Amount (including Indirect Costs): $538,005

Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project:

Year	Person-months per year committed
2022	0.24
2022	0.24
2022	0.24

Overall Objectives: Use Generative Adversarial Networks to rapidly salt data for blinded analysis of dark-matter data.

Statement of Potential Overlap: Methods developed in this grant may be used for analysis and data quality in the grant, "The SuperCDMS at SNOLAB Operations Program."