

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof. Reference herein to any social initiative (including but not limited to Diversity, Equity, and Inclusion (DEI); Community Benefits Plans (CBP); Justice 40; etc.) is made by the Author independent of any current requirement by the United States Government and does not constitute or imply endorsement, recommendation, or support by the United States Government or any agency thereof.



Managed by Fermi Research Alliance, LLC for the U.S. Department of Energy Office of Science

QuarkNet Center Summer Internship for High School Students – FY2024

Cooperative Research and Development Agreement Final Report

CRADA Number: FRA-2024-0007

Fermilab Technical Contact: Spencer Pasero

Report Date:
November 11, 2024

NOTICE

This report was prepared as an account of work sponsored by an agency of the United States government. Neither the United States government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States government or any agency thereof.

Available electronically at <http://www.osti.gov/>

Available for a processing fee to U.S. Department of Energy and its contractors, in paper, from:
U.S. Department of Energy
Office of Scientific and Technical Information
P.O. Box 62
Oak Ridge, TN 37831-0062
phone: 865.576.8401
fax: 865.576.5728
email: <mailto:reports@osti.gov>

Available for sale to the public, in paper, from:
U.S. Department of Commerce
National Technical Information Service
5301 Shawnee Rd
Alexandria, VA 22312
phone: 800.553.6847 or 703-605-6000
fax: 703.605.6900
email: orders@ntis.gov
online ordering: <http://www.ntis.gov/>

In accordance with Requirements set forth in Article X of the CRADA document, this document is the final CRADA report, including a list of Subject Inventions, to be forwarded to the Office of Science and Technical Information as part of the commitment to the public to demonstrate results of federally funded research.

CRADA number: FRA-2024-0007

CRADA Title: QuarkNet Center Summer Internship for High School Students – FY 2024

Parties to the Agreement: Community College District 502 – College of DuPage

Sponsoring DOE Program Office(s): Office of Science

DOE Funding Commitment Table:

FY2024		
Funding Type	Funds-in	In-kind
Partner	20,000	0
Fermilab	0	20,235
Total	40,235	

Abstract of CRADA work:

The purpose of this CRADA is to provide the contractual vehicle for Fermilab to receive funds from the College of DuPage in support of high school student research working with the Fermilab/University of Chicago QuarkNet Center, beginning with the effective date of this CRADA and continuing through 2024.

Local QuarkNet Centers provide professional development programs to high school teachers and high energy physics research opportunities to high school teachers and students who participate in the local programs. The Office of Education and Public Engagement at Fermi National Accelerator Laboratory (Fermilab) administers a local QuarkNet Center program on behalf of both Fermilab and the University of Chicago.

Summary of Research Results:

This CRADA funded the participation of four students in a seven-week summer research program. Students worked on a variety of projects at Fermilab, including:

- Developing integrated systems for testing ASICs for use in the DUNE experiment.
- Conducting optical characterization of the InfraBREAD reflector.
- Analyzing double-pulse events for cosmic ray muon detectors.
- Developing techniques for removing background noise in detection of horizontal cosmic rays.

Related Reports, Publications, and Presentations:

None.

Subject Inventions listing:

None.

Report Date: November 11, 2024

Technical Contact at Fermilab: [Spencer Pasero, spasero@fnal.gov](mailto:Spencer.Pasero@fnal.gov)

Partner POC Name and Email Address: Tom Carter, cartert@cod.edu

This document contains NO confidential, protectable or proprietary information.