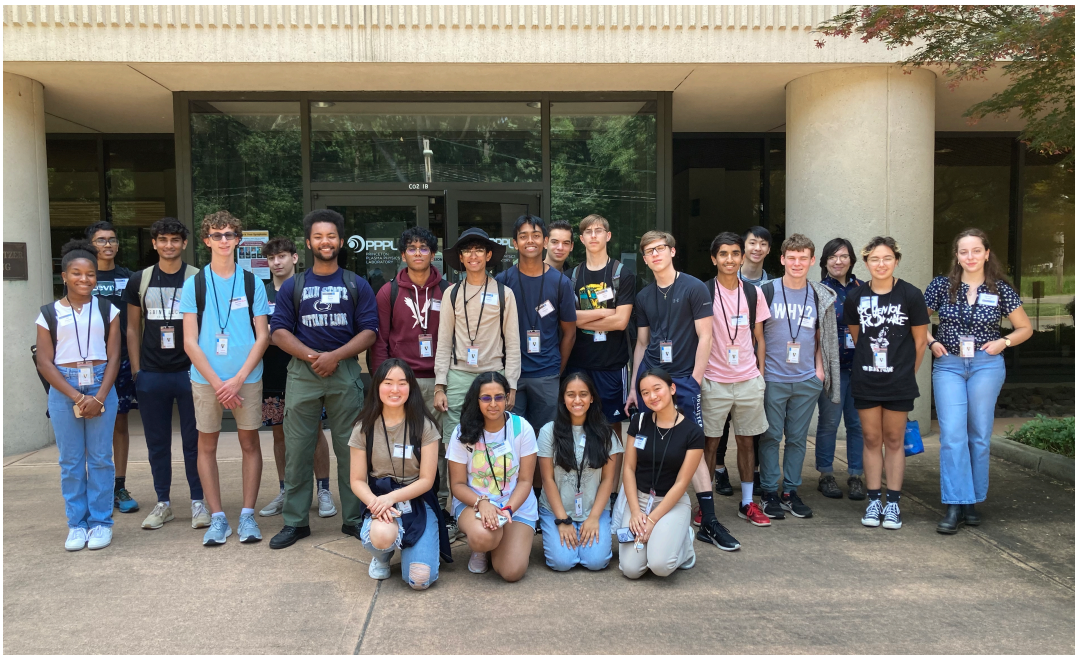
Rutgers 2023 Annual QuarkNet Program Report

This year the Rutgers QuarkNet Center again held it's widely acclaimed two-week Summer Program on Fundamental Physics for New Jersey high school students. Twenty-four students participated in daily sessions covering neutrino physics, quantum computing and cosmic ray detection. In the neutrino sessions, students participated in hands-on activities analyzing data from the Fermilab MINERvA experiment. In the quantum computing sessions, students used the IBM Qiskit framework to compose quantum algorithms and run them on actual quantum computers through the cloud. In the cosmic ray sessions students used the cosmic ray detection kits provided by Quarknet to make measurement on cosmic ray muons including a high-precision measurement of the muon lifetime. A high point of the program was the evening closing event on the final day of the program in which groups of students gave presentations to an audience consisting of family, friends, teachers and the general public on what they had learned during the program. All of the presentations were excellent and the audience was greatly impressed and amazed by what the students had learned and accomplished in the two week period of the program.



Mentor: Steve Schnetzer

Rutgers University is one of the oldest QuarkNet centers having been established in 2000 the second year of the NSF funded QuarkNet program. Our center has trained over twenty high school physics teachers from throughout New Jersey in leading edge particle physics and have involved them in the construction, operation and classroom use of cosmic ray detector kits. For over ten years, we have run a highly successful two-week summer program for high school teachers and students.