University of Rochester
Summer 2024 undergraduate research in Physics, Optics and Astronomy

Sanya Arora, class of '25 at Rice University, analyzed the IceCube Neutrino Observatory's sensitivity to neutrino oscillation parameters with Prof. Segev BenZvi. She plans to apply for graduate school for particle physics.

Samantha Conrow, class of '25 at SUNY, Geneseo did research with the group of Prof. Gourdain and used a Levenberg-Marquardt algorithm to enhance shock capturing techniques that can be used for Radial Basis Functions.

Ben Furst, class of '25 at SUNY Fredonia, analyzed the angular distribution of cosmic events and optical fibers used in the Super Fine Grained Detector of the T2K experiment with Prof. Kevin McFarland and Joel Elias.

Krist Ha, class of '26 at Miami University, Ohio, studied laser frequency stabilization for laser cooling applications with the research group of Prof. Nicholas Bigelow. She plans on applying to graduate school for physics or optics.

Stephen Heritage, class of '25 at the University of Notre Dame, worked with Prof. Alice Quillen on simulating a glitch during the 2029 encounter of the asteroid Apophis with the Earth. He plans to apply to graduate school for astrophysics.

Aiden Karpf, class of '25 at Pomona College, conducted research in Prof. John M. Nichol's quantum computing lab to investigate the utility of nuclear spin states as a quantum memory. He plans to apply to graduate school in quantum information or condensed matter physics.

Amber Krape, class of '25 at Penn State University, studied detector systematics for the Deep Underground Neutrino Experiment with Prof. Chris Marshall. Amber plans to pursue particle physics in graduate school.

Julia Largett, class of '26 at the University of Rochester, morphologically classified galaxies in the Siena Galaxy Atlas (SGA) using unsupervised and supervised machine learning methods with Prof. Kelly Douglass and Prof. Segev BenZvi. She plans to apply to graduate school for cosmology and astrophysics.

Carrel Moralez, class of '25 at the University of Florida, did research with Prof. Machiel Blok on quantum computing using qudits to develop a method to estimate density matrices of a system by performing spin displacement state tomography. He plans to apply to graduate school in physics.

Lars Pedersen, class of '25 at the University of Nebraska-Lincoln designed a user-friendly algorithm that initializes CAD models via STL files in simulations using the Flash Center for Computational Science's FLASH code. He plans to apply for graduate school in physics.

Reid Pfaltzgraff-Carlson, class of '26 at Kenyon College, simulated shocked foams using FLASH with Prof. Petros Tzeferacos. He plans to continue work on his project during the coming year.

JJ Pimentel, class of '25 at California Lutheran University, fit rotation curves to demonstrate the relationship between velocity and radial distance at certain targets for spiral galaxies using data from the first DESI survey data release with Prof. Kelly Douglass. He plans to apply to graduate school for astrophysics.

Odin Schor, class of '27 at the University of Southern California, studied the parametrization of fusion characteristics of heavy ions with Prof. Sheth Nyibule. He plans to continue his undergraduate degrees and subsequently apply for graduate school in either mathematics or physics.

Talia Senall, class of ‘25 at SUNY Geneseo, tested infrared detectors for a NASA direction space mission titled the “Near-Earth Object Surveyor” with University of Rochester’s physics and astronomy senior research engineer Craig McMurtry. She plans to apply to graduate school for astronomy.

Taylor Williams, class '27 at Southern University and A&M College, studied extreme physics by studying high energy density plasmas and how to improve shearing air-wedge interferometers for accuracy with Prof. Pierre Gourdain. She plans to apply to graduate school for biomedical engineering.