University of Rochester
Summer 2022 undergraduate research in Physics, Optics and Astronomy

Thomas Ahrens, class of '23 at the University of Rochester, studied and analyzed core-collapse supernova (CCSN) neutrino emission models for the IceCube Collaboration with Prof. Segev BenZvi.

Alex Ball, class of '23 at SUNY Geneseo, worked on measurement of the diffractive pion production neutrino reaction to help improve diffractive event simulations, using data from the MINERvA experiment at Fermilab with Prof. Kevin McFarland. He plans to apply for graduate school in physics.

Evan Bursch class of ‘24 at The University of Notre Dame, worked on analytically, numerically, and physically modeling a 5-50 MeV electron-positron spectrometer for the Laboratory for Laser Energetics with Prof. Dustin Froula and Dr. Bob Boni. He plans to apply to graduate school for plasma physics, specifically in nuclear fusion.

Jeremy Fleishhacker '23 at Carleton College, conducted sensitivity testing for the next-generation Deep Underground Neutrino Experiment (DUNE) to explore DUNE's long-term neutrino oscillation measurement ability with Prof. Christopher Marshall. He plans to apply to graduate school for high energy or plasma physics.

Ariana Garcia, class of '23 at New Mexico Institute of Mining and Technology, did research with the cooling and trapping group of Prof. Nicholas Bigelow to develop complex light beam structures with a digital micromirror device (DMD). She plans to continue working at Los Alamos National Lab in the future.

Casey Ann Horvath, class of ’24 at Ohio University, studied the impacts of the small-scale environment on dwarf galaxy evolution with Prof. Kelly Douglass. She plans on pursuing a Ph.D. in astrophysics.

Abram Konzel, class of ’24 at Rensselaer Polytechnic Institute, studied the echelon for the axiparabola – an optical profile reconstruction through Zerike analysis with Dr. R. Boni and Prof. D. Froula. He plans to apply to graduate school.

Natalie Kot, class of ’23 at the University of Michigan, worked with Dr. Chad Forrest and Dr. Sorce at the Laboratory for Laser Energetics on understanding and applying a lanthanum bromide detector on the target chamber. She plans to pursue a future in industry.

Jake Markowski, class of ’23 at St. Olaf College, worked to develop the software necessary to run a chip-scale atomic layer deposition device currently being created by Prof. John Nichol’s lab. He plans to apply for a PhD program in quantum information science.

Lily McKenna, class of '23 at Rochester Institute of Technology, studied absorption spectroscopy of rubidium atoms to be used in a Magneto-Optical Trap with Prof. Nicholas Bigelow. She plans to apply to graduate school for imaging science.

Pete Miller, class of '23 at Rochester Institute of Technology, investigated production paths of heavy-ion fusion production of indium-111 with Dr. Sheth Nyibule. He plans to apply to graduate school for computational biophysics.

Hayley Nofi class of ’23 at Villanova University calibrated the DESI Tully-Fisher relation at 0.4R26 for Y1 data of the DESI Peculiar Velocity Survey. She plans to apply to graduate school for astrophysics.

Nathan Skerrett, class of '24 at the University of Rochester, studied strategies for pattern formation control with unique boundaries with Prof. Alice Quillen.

Samantha Sunnarborg, class of '23 at Minnesota State University, Mankato, studied recombination effects in the ICARUS Lar TPC neutrino detector with Prof. Chris Marshall. She plans to apply to graduate school in particle physics.

Elias Veilleux, class of '23 at Bates College, studied the creation of optical frequency combs (OFCs) at Gigahertz repetition rates and picosecond pulse durations using electro-optic modulators, for use as pump sources of Kerr micro-resonators. He plans to pursue a PhD in electrical engineering.