University of Rochester

Summer 2026 undergraduate research in Physics, Optics, and Astronomy

Douglas Miller, class of '27 at Florida Atlantic University, did research in condensed matter theory with Professor Chaitanya Murthy, analyzing a quantum scattering problem potentially useful for interpreting results of interferometers that can detect anyons. He plans to apply to graduate school for theoretical condensed matter physics.

Atharv Kulkarni, class of 2027 at Pomona College, explored oxide level defects in semiconductor qubits as a mechanism for charge noise. He plans to apply to graduate school for quantum information or adjacent science.

Devin Doherty, class of '28 at Linfield University, compared the critical phenomena of equilibrium and nonequilibrium systems through Monte Carlo simulations with Prof. Chaitanya Murthy. He plans to further explore other undergraduate research opportunities and eventually apply to graduate school for theoretical physics.

Josephine McCullough, class of '28 at Utah Valley University, studied Ca II triplet emission lines from gaseous disks around white dwarfs with Dr. Taylor Kutra and Dr. Dominique Segura-Cox. She plans to apply to graduate school for Physics.

Daniel Bustos, class of ‘27 at Cal Poly Humboldt, worked with Professor Kelly Douglass on measuring galactic rotation curves to estimate the total mass in galaxies. He plans to apply to graduate school for astrophysics

Zoe Obi, class of 2027 at Mount Holyoke College, studied the impact of belts and other metal accessories on adaptive radiation therapy to the pelvis at URMC with Professor Alex Podgorsak. She plans to apply to medical school.

Marissa Godoy, class of ‘27 at San Jose State University, developed an 852nm external cavity diode laser for optical trapping under Dr. Nicholas Bigelow. She plans to apply to graduate school programs for both optical sciences and audio-music engineering.

Caleb Fredrick, class of ’28 at Coe College, studied parotid shrinkage as an objective trigger for offline head and neck adaptive radiotherapy with Dr. Alexander Podgorsak. He plans to pursue a Ph.D. in medical physics.

Casey Rush, class of ‘27 at Bridgewater State University, studied Axion-Like Particles using Core-Collapse Supernova models with Prof. Segev BenZvi. She is working on applying to PhD programs in physics and astronomy.

Miles Chaney, obtaining his B.S. and M.S. in physics at Worcester Polytechnic Institute, class of 2028, worked with Tristan Bachmann and Professor Dominique Segura-Cox to study angular momentum in rotating protostellar outflows. He aims to go to graduate school for astrophysics.

Nickolaus Shaw, class of 2027 at the University of Wisconsin-Platteville, studied the use of multi-component Bose—Einstein condensates and vortex formation in creating classical and quantum logic gates with Prof. Nicholas P. Bigelow. He plans to apply to graduate school for Electrical Engineering.

Alexandra Ziegler, class of ’27 at Millersville University, designed and developed a lumped element LC resonator that will be fabricated using a shadow mask method. She plans to apply to graduate school for atomic, molecular and optical physics.