University of Rochester
Summer 2012 undergraduate research in Physics, Optics, and Astronomy

Marissa Adams, class of 2014 at the University of Rochester, organized and taught the Pre-College Experience in Physics (PREP) Program for young women under the direction of Prof. Steven Manly. PREP is a program designed for local high school girls to encourage them to pursue a future in physics-related fields. She plans to pursue graduate education in physics.

Andrew Blaikie, class of '13 from the College of Wooster, worked with Dr. Philip Rodriguez and Prof. Kevin McFarland on techniques to implement correlated uncertainties in pion production modeling for use in the T2K neutrino oscillation analysis. He plans on applying to graduate school in physics.

Krysta Boccuzzi, class of 2013 at Rensselaer Polytechnic Institute, worked with Prof. Jannick Rolland to study the birefringence of gradient refractive index (GRIN) materials composed of the polymers PMMA and SAN17. She plans on applying to graduate school in optics.

William Bock, class of '14 at University of Rochester, studied hole transport in A-T DNA base pairs with Dr. Esther Conwell. He plans to apply to MD/PHD programs for medical physics.

Alexander Breindel, class of '13 at University of Rochester, worked with Prof. Esther Conwell on hole transport in DNA. He plans to apply to graduate school for physics.

Brian Castro, class of '13 at the University of Rochester, worked with Prof. Ebinger studying dike Intrusions and dynamic triggering of earthquakes in the East African Rift. He plans to go to graduate school in geophysics.

Brian Degner, class of '13, worked with Prof. Frank L. H. Wolfs on designing a dark matter detector simulating the electronic trigger operation in MATLab. He plans on applying to graduate school in physics.

Dale Fox, class of '12 Northwestern University, worked with Prof. Bigelow's group on stabilizing the frequency of laser diodes using a transfer cavity. He plans to apply to graduate school in optics.

Alicia Gomez, class of '13 at Florida State University, worked with Prof,.Aran Garcia-Bellido on axigluon colored octet sample generations for the top quark forward-backward asymmetry analysis. She plans on applying to graduate school for experimental high energy physics.

Peter Heuer, class of ’14 at the University of Rochester, worked under Prof. Nick Bigelow with Maitreyi Jayaseelan to design and build two frequency-stabilized external cavity diode lasers for a rubidium magneto-optical trap. He plans to apply to graduate school for physics.

Skyler Kasko, class of '14 at Brandeis University, worked with Prof. Aran Garcia-Bellido on optimizing the Higgs analysis in the channel H-ZZ*-(qq)(ll) for the low-mass range using Monte Carlo samples from the Compact Muon Solenoid experiment at CERN. He plans to apply to graduate school in particle physics.

Sam Kastner, a physics and music double major in the class of '15 at Skidmore College, worked with Prof. John Tarduno's group and conducted paleomagnetic studies on dunite from the Isle of Skye in northern Scotland. He plans to go to graduate school for physics.

Emily Kraus, class of '13 at the University of Rochester, studied a local population of magnetotactic bacteria and their relevance to the field of paleomagnetism with Prof. John Tarduno and Dr. Rory Cottrell. She plans on applying to graduate school for environmental science.

Kara Kundert, class of '15 at Oberlin worked with Prof. Judy Pipher on studying infrared detector arrays. She will apply to graduate school in astrophysics.

Alexandra Kuznetsov, class of '14 at the University of Rochester, used magnetic analysis of the NWA 5480 meteorite to study paleofields on the asteroid 4 Vesta with Prof. John Tarduno. She plans to apply to graduate school for astrophysics.

Philippe Lewalle, class of '14 at University of Rochester, studied the theory behind superconducting qubits and quantum harmonic oscillators with Prof. Joseph Eberly. He plans to apply for graduate school in physics or engineering.

Laura Maher, class of '14 at Grove City College, studied the use of adaptive optics on a 1km free space thick turbulence system for future implementation in a quantum communication system with Prof. Robert Boyd. She plans to apply to graduate school in physics.

Kelly Malone, class of '13 at the University of Massachusetts Amherst, worked with Dr. Gabriel Perdue and Prof. Kevin McFarland on vertex reconstruction in the search for long-lived, weakly-interacting particle decays to opposite-sign dimuon pairs in front of the MINERvA detector. She plans on applying to graduate school in physics.

Dilyana Mihaylova class of '13 at University of Rochester, studied single photon sources and did computer modeling of plasmonic structures with Dr. Svetlana Lukishova. She plans to apply to graduate school for material science.

Michelle Storms, class of '14 at Ohio Wesleyan University, worked with Dr. Gabriel Perdue and Prof. Kevin McFarland conducting a search for unexplained neutral particle decays into opposite-sign di-muon events in data from the first MINERvA detector run at Fermilab. She plans to apply to graduate school for high energy physics.

Rachel Stuart, class of '14 at the University of Rochester, studied conduction of a positive hole inserted into strands of Adenine-Thymine pairs with Dr. Esther Conwell. She plans to study medical physics in graduate school, possibly with a focus on prosthetics.

Hannah Tanquary, class of '13 at Eastern Illinois University, worked with Prof. Alice Quillen on computer simulations of planetary system dynamics: Stabilizing the 4:3 mean motion resonance in drifting capture scenarios. She plans to apply to graduate school for planetary science.

Aaron Van Dyne, class of '14 at Roberts Wesleyan College, worked with Prof. Arie Bodek, Dr. Willis Sakumoto, and Dr. Jiyeon Han on correcting the full CDF run II data set for the decay of Z-bosons to dimuon pairs. He will apply to graduate school for physical chemistry.

Matthew Ware, class of '13 at Illinois State University, worked with Prof. John Howell on algorithms for fast reconstructions of images measured using compressive sensing. He plans on applying to graduate school in physics.

Joyce Wu, class of '13 at Ithaca College, worked with Prof. Jannick Rolland on designing and setting up the Hilbert Telescope to demonstrate intrinsic binodal astigmatic aberrations. She plans on applying to graduate school in physics.

Michael Yanakas, class of '13 at Rowan University, worked with Brandon Rodenburg and Prof. Robert Boyd on implementing adaptive optics into a free space quantum key distribution system to correct for the effects of thick turbulence. He plans on applying to graduate school.