

University of Rochester

Summer 2003 undergraduate research in Physics and Astronomy

- John DiMaria, class of '04 at the University of Connecticut, researched and experimented with the in-situ fabrication of natural contacts on single nanowires with Prof. Wenhao Wu. He also studied the resistance of the nanowires as functions of both temperature and magnetic field. He plans to attend graduate school for physics next year.

- Todd Fallesen, St. Lawrence University Class of '04, worked with Dr. Zhong of Physics and Radiology in optimizing Parameters for Intermolecular double quantum coherence techniques in nuclear magnetic resonance. He plans on continuing into graduate school for biophysics.

- Kevin Flaherty, class of '05 at the University of Rochester worked with Prof. Judy Pipher and UR graduate student Robert Gutermuth on studying star formation and spatial distributions in the young open star cluster S171. He plans on applying to graduate school in astronomy.

- Robert Forties, class of '05 at the University of Rochester, worked with Prof. Robert S. Knox on the determination of rates of excitation transfer between linked porphyrins using kinetics and Förster theory. He plans to apply to graduate school for physics.

- Tom Goodman, class of '05 at Bucknell University, used zero-temperature Monte Carlo methods to study the roughening of elastic strings driven through 2-D random Gaussian potential fields with Professor Steven Teitel. He plans to obtain a master's degree in electrical engineering.

Amy Chi-Yun Huang, class of '05, at the University of Rochester, investigated physics education with Priscilla Auchincloss by teaching a pre-college experience in physics program to high school women. She is undecided about her plans after graduation.

Stewart Knox, class of '04 at the University of Rochester, worked with Professor Yongli Gao to correct for drifting effects inherent in atomic force microscopy to an accuracy sufficient enough to manipulate 200nm pentacene crystal growths. He is still in the process of deciding if he wants to attend graduate school.

Jarron Leisenring, class of '05 at the University of Rochester, worked on with Prof. Dan Watson on designing and creating various database systems to contain information gathered from Rochester's involvement with the Space Infrared Telescope Facility (SIRTF) as well to generate instructions used for pointing the telescope. He plans on going to graduate school in the next couple of years.

Sarah Lockwitz, class of '05 at Michigan State University, worked on CDF analysis and the testing of silicon detectors for the CMS detector with the group of Professor Paul Tipton. At CDF, she worked on adding variables to study second vertexes of short-lived particles, and calculating the efficiency at which electrons are identified. She plans graduate study in physics.

Melissa McClure, class of '06 at the University of Rochester, worked with Prof. William Forrest on

the reduction and analysis of ground based data taken in the infrared of young stellar objects to be targeted with NASA's Space Infrared Telescope Facility. She plans on applying to graduate school for astrophysics in a few years.

Daniel Miner, class of '05 at Brandeis University, worked with Prof. Frank Wolfs and Dr. Wojtek Skulski on programming software for a prototype digital pulse processing board and then using said board to perform a muon capture experiment. Daniel plans on going to graduate school for physics.

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Chris Mooney, class of '04 at the University of Arkansas, worked with Prof. Adrian Melissinos on simulating the output of the LIGO interferometers. The data and simulation information was then used to help fit data obtained at the Hanford, Washington observatory. Chris plans on attending graduate school.

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Krystal Tyler, class of 2005 at Purdue University, used X-ray data from the Chandra observatory to study diffuse X-ray emission from nearby, face-on spiral galaxies with Prof. Alice Quillen. She plans on attending graduate school to study astrophysics.

Vikas Patel, Class of '04 at SUNY at Buffalo, worked on correlation between temperature trend line and pressure with Prof. Douglass. He plans on going to graduate school for medical physics or astrophysics/astronomy.

Aimee Slaughter, class of '04 at the College of William and Mary, investigated cosmic rays with Prof. Kevin McFarland. She worked with a liquid scintillator candidate for a neutrino oscillations experiment and with the PARTICLE program which taught local high school physics teachers about particle physics. She plans on applying to graduate school in physics.

Pawel Sopicki, class of '06 at the Jagiellonian University in Krakow, Poland, worked with a group of physicists on the testbeam of the CMS Hadron Calorimeter. His direct supervisor was Dr. Pawel de Barbaro. Pawel's responsibilities were related to the construction and calibration of the ECAL calorimeter. He helped to assemble it, and participated in the calculation of calibration coefficients needed for analysis of the entire ECAL+HCAL data. He plans to write a CMS note summarizing his work and plans on obtaining his masters degree in physics as part of a 3-2 program. His participation was funded by other sources.

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Ian Spitzer, class of '05 at St. John Fisher College, worked with Steve Manly on particle jet detection in proton-proton and gold ion collision data as part of the PHOBOS experiment at the Relativistic Heavy Ion Collider at BNL. He expects to apply to graduate school in engineering.

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Frank Tompkins, class of '05 at Carnegie Mellon University, worked with Prof. McFarland to create muon telescopes allowing local high school teachers and students to experiment with cosmic ray muons. He created Linux based data acquisition software. Frank plans to attend graduate school in theoretical physics.

Josh Veazey, class of '04 at the University of Rochester, worked on testing the properties of Ga doped Ge detectors at infrared wavelengths for possible use on a next generation telescope with Prof. Dan

Watson in the far infrared lab. He plans on going to graduate school for physics.

Evan Wendel, class of '04 at Hobart and William Smith Colleges, worked with Asst. Prof. of Physics John C. Howell on theoretically constructing an optically implementable form of the Wootters-Zurek quantum-copying machine, or QCM. The proposed device utilizes Greenberger-Horne-Zeilenger (GHZ) states, a quantum teleportation protocol, and Bell state measurements. At the closure of the REU program, he had been looking at possible uses of such a QCM, specifically its applications in quantum state discrimination. He plans on applying to graduate school.