

University of Rochester
Summer 2003 undergraduate research in Optics

Laura Elgin, class of '04 at the University of Rochester, worked with Dr. Svetlana Lukishova and Anand Jha to create a quantum optics teaching laboratory for future undergraduate physics and optical engineering students. She produced polarization-entangled photons by parametric down conversion in BBO crystals, observed a violation of Bell's Inequalities, and co-authored the lab manual for this experiment. Laura plans to study quantum optics in graduate school.

Tatia Engelmores, class of '04 at Cornell University, studied environmental decoherence of spin states with Prof. Joseph Eberly. She plans on going to graduate school in physics next year.

Yu Gu, class of '05 at Cornell University worked with Prof. Robert Boyd and graduate student Giovanni Piredda on imaging through scattering medium with holography using photorefractive crystals as recording media. She obtained some significant results which may be submitted as a paper. She plans on doing a graduate degree in engineering physics.

Yiang (Kaccie) Li, class of '05, University of Rochester, worked on various software imaging techniques in the optoelectronics group ran by Prof. Nicholas George as well as tip manufacturing with Prof. Lukas Novotny for future near-field imaging purposes. He is going to complete his BS in optics and plans to go to graduate school for marine biology.

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Edwine Michel, class of '04 at the University of Rochester, worked with Lukas Novotny's Nano-Optics Group on the detection and dynamics of single molecule proteins using Fluorescence Microscopy. His project involved a collaboration with Dr. Philip Knauf's Biochemistry/Biophysics Group. He is currently applying to graduate school for 2004.

David Niles, class of '04 at the University of Rochester worked on examining the photosensitizer PC4 in multicell tumor spheroids and by observing the distribution of cellular damage from photodynamic therapy as it corresponded to production of green fluorescent protein. He worked under the guidance of Prof. Tom Foster and plans on applying to graduate school.

Siddharth Parameswaran, class of '06 at the University of Rochester worked with Prof. John Howell, on theoretical investigation of quantum state discrimination and quantum cloning. He also worked with Prof. Nick Bigelow on setting up an online display system for animations of numeric simulations of BECs, and is currently working on extending these simulations to tackle problems of a non-condensate cloud, under the supervision of graduate student Leslie Baksmaty. He plans on applying to graduate school in physics in a couple of years.

Amanda Peters, class of '05 at Duke University, worked with Prof. Andrew Berger implemented near infrared light to study hemoglobin changes in live tissue. She plans to apply to graduate school in a few years.

Allison Powers, class of '04 at the University of Rochester worked on examining the photosensitizer PC4 in multicell tumor spheroids and by observing the distribution of cellular damage from

photodynamic therapy as it corresponded to production of green fluorescent protein. She worked under the guidance of Prof. Tom Foster at Strong Hospital and plans on applying to graduate school.

Matt Pysher, class of '04 at Colgate University, studied the nonlinear effects that femtosecond beams with helical wavefronts have on glass, with Prof. Chunlei Guo. He plans on going to graduate school for physics or optics next year.

Daniel Staloff, class of '05 at the University of Rochester, worked with Professor Thomas Brown of the Optics Department designing a condenser for a multiple oblique illumination system.

Chris Supranowitz, class of '05 at the University of Rochester, worked with Prof. Svetlana Lukishova on the development of a room-temperature liquid crystal single photon source to be used in a quantum computing or quantum cryptography system. He plans on applying to graduate school for optics.

Jeremy Weeden, class of 2005 at Juniata College, worked on the development of equipment in order to prepare Prof. Nick Bigelow's quantum optics group for the next stages of research. He intends to go to graduate school for theoretical astrophysics upon graduation.