

Susan Y. Wrbanek

Education:

Master of Science in Physics, Wright State University, Dayton, Ohio 45435 1998

Thesis Topic: UV/VIS/NIR Absorption Studies of Silicon Ion-Implanted Quartz

Bachelor of Science in Physics, Bowling Green State University, Bowling Green, Ohio 43403 1988

Work Experience:

Electronics Engineer NASA Glenn Research Center, Cleveland, OH 44135

Perform research toward generating new optical instrumentation for aerospace and exploration applications. Areas of research include: Optical trapping and monitoring of light scattering for optical trapping in air, vacuum and liquid environments. Radiation detector development.

Adjunct Instructor Wright State University, Department of Physics, Dayton, Ohio 45435

Adjunct faculty teaching and tutoring for laboratory courses in physics, astronomy.

Optical Engineer / Consultant K Systems Corporation, Beavercreek, Ohio 45432

At Wright Patterson Air Force Base (WPAFB), Dayton, Ohio

Performed optical analysis of coatings, substrate, and thin film materials using Fourier Transform Infrared Spectroscopy (FTIR).

Graduate Thesis Research Wright State University, Department of Physics, Dayton Ohio 45435

Measured optical properties of solid state materials at Oak Ridge National Laboratory.

Laboratory Teaching Assistant Wright State University, Department of Physics, Dayton, Ohio 45435

Instructed independent introductory physics and astronomy laboratory courses.

Experimental Areas Beamline Operator Fermi National Accelerator Laboratory, Batavia, Illinois 60510

Maintained the transportation of accelerated H^+ ion beams. Maintained beamline instrumentation and analysis systems. Analyzed beamline optics and experimental problems.

Bowling Green State University, (BGSU) Bowling Green, OH 43403

Undergraduate Research Assistant BGSU Department of Chemistry

Constructed and operated a prototype gain spoiling absorption spectrometer to study NIR, and IR. Performed Molecular Absorption Spectroscopy of gases using intracavity laser techniques.

Laboratory Teaching Assistant BGSU Department of Physics & Astronomy

Laboratory teaching assistant for Junior level Modern Physics and Wave Mechanics courses.

Stargaze Director BGSU Department of Physics & Astronomy

Supervised and trained observatory and planetarium student while continuing to perform all duties of Stargaze Instructor/Planetarium Assistant.

Stargaze Instructor/Planetarium Assistant BGSU Department of Physics & Astronomy,

Instructed observational portion of astronomy courses and observing sessions for the general public.

Operated a Star Projector and answered audience questions for public astronomy presentations.

Assisted in the maintenance, repair and alignment of all optical and electrical planetarium equipment.

Assistant Laboratory Technician BGSU Department of Physics & Astronomy,

Set up equipment for use in the physics laboratory courses. Repaired and maintained all laboratory equipment. Promoted to laboratory teaching assistant.

Papers/Publications/Presentations:

“Neural network for image-to-image control of optical tweezers,” Arthur J. Decker, Robert C. Anderson, Kenneth E. Weiland, Susan Y. Wrbanek *Optical Trapping and Micromanipulation* Proceedings of SPIE 2004 Annual Meeting, Denver, CO, Vol. 5514, p. 150

“Optical Levitation of Microscale Particles in Air,” Susan Y. Wrbanek, Kenneth E. Weiland NASA/TM-2004-212889 Jan. 2004

“Optical Levitation of Microscale Particles in Air as a Precursor to Optical Trapping in a Vacuum Environment,” Susan Y. Wrbanek. Presentation to Great Lakes Photonics Symposium, Cleveland OH, June 2004.

“Absorption Coefficient of Buried-Si in Quartz Between 200 and 1000 nm,” G.C. Farlow, S. Wrbanek (Wright State University) 1999 Fall Meeting Ohio Section American Physical Society

“UV/VIS/NIR Absorption Studies of Silicon Ion-Implanted Quartz,” M. S. Thesis in physics, Wright State University, Dayton, OH 45435 1998

“UV/VIS/NIR Optical Absorption of a Si-implanted Layer in Quartz,” S.Y. Wrbanek, G.C. Farlow, 1997 presentation to APS Ohio Section Spring Meeting, Bowling Green, Ohio, May 2-3 1997.

Professional organizations:

SPIE The International Society for Optical Engineering

APS The American Physical Society

Awards/Patents

NASA Disclosure of Invention and New Technology, LEW 17865-1, "Plasma Flow Actuator Utilizing a Single Serrated Electrode" – Gustave C. Fralick, Susan Y. Wrbanek, John D. Wrbanek