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Kimberly A. Firestone

EDUCATION

University of Washington, Seattle, Washington.
M.S. in Physical Chemistry, August 2002.
Ph.D. in Physical Chemistry, expected June 2005.

Rice University, Houston, Texas.
B.A. in Chemistry, ACS Certified, May 2000.

The Pembroke Hill School, Kansas City, Missouri.
Top 5% of Graduating Class (1996), Cum Laude Society (1995).

EXPERIENCE

Research Assistant, University of Washington
Chemistry Department, August 2000-present. Advisor: Prof. Larry Dalton.
NSF Science and Technology Center: Materials and Devices Information Technology Research.
Performed characterization of organic nonlinear optical chromophores via femtosecond hyper-Rayleigh scattering, employing a Ti:Sapphire oscillator and an optical parametric oscillator. Calculated hyperpolarizabilities of chromophores from these results and explored their dispersion relationships through frequency-agile studies. Explored novel techniques for differentiation of hyper-Rayleigh signals from multi-photon fluorescence. Pursued better understanding of solvent/chromophore interactions and hyperpolarizabilities of the solvents themselves. Developed preliminary designs for hybrid nonlinear optical/photonic bandgap devices. Assisted in organizing an NSF site visit leading to the funding of a Science and Technology Center. Recruited graduate students. Mentored graduate and undergraduate students.

National Science Foundation (REU) Intern, Rice University
Rice Quantum Institute, Summer 1999. Advisor: Prof. Vicki Colvin.
Developed techniques for analyzing the quality of photonic band gap colloidal silica crystals. Synthesized crystals and imaged samples via scanning electron microscopy. Extracted quantitative data through image processing to correlate faults in the crystals (e.g. grain boundaries, cracks, disordered patches of colloids) with colloidal monodispersity. Presented results at the Colloids and Surface Science Division's poster session at the American Chemical Society meeting in New Orleans. Continued work as undergraduate researcher through May 2000.

Teaching Assistant, Organic Chemistry Laboratory, Rice University
Chemistry Department, September 1998-January 2000. Supervisor: Prof. Seiichi Matsuda.
Instructed a groups of fifteen-eighteen students in laboratory technique and safe procedure in the microscale organic teaching lab. Corrected and graded laboratory notebooks. Prepared necessary reagents for experiments.

Energy Research Undergraduate Laboratory Fellow, Oak Ridge National Lab
Environmental Sciences Division. Summer 1998. Advisor: Dr. Gerilynn Moline.
Served as research assistant to a geohydrologist, studying transport phenomena in fractured porous materials. Examined geochemical and geologic controls on such transport by excavating cores from the Oak Ridge Reservation subsurface, measuring high-resolution CT scans, and computer modeling. Selected as one of nineteen interns nationally to participate in a poster session at the Department of Energy offices in Washington, D.C.

National Science Foundation (REU) Intern/Peer Mentor, University of Missouri
Research Reactor – Radiopharmaceuticals Group. Summer 1997. Advisor: Prof. Gary Ehrhardt.
Explored the use of a tetrapeptide chelating moiety in radiolabeling polypeptides and monoclonal antibody fragments as radioimmunotherapy agents. Designed techniques for efficient transfer of a radionuclide to the tetrapeptide via an exchange ligand. Prepared a poster, paper, and formal lecture on findings. Aided other interns with similar presentations.

National Science Foundation (REU) Intern, University of Missouri
Research Reactor – Radiopharmaceuticals Group. Summer 1996. Advisor: Prof. Gary Ehrhardt.
Examined the survival of rare-earth-containing Fullerenes, irradiated under a thermal neutron flux, for use as radiopharmaceutical agents. Investigated the possible employment of radioactive stents to improve angioplasty. Attended a series of lectures on research methods and related issues.

**PUBLICATIONS
AND CONFERENCE
PAPERS**

Firestone, Kimberly A.; Bale, Denise H.; Westphal, James, B.; Scott, David C.; Reid, Philip J.; & Dalton, Larry R. "Frequency Agile Hyper-Rayleigh Scattering Studies of Non-Linear Optical Chromophores." *Polymeric Materials: Science and Engineering*, **2003**, 88, 294-295.

Colvin, Vicki L.; Jiang, Peng; Kacher, John; Turner, Mary E.; Kulinowski, Kristen; Firestone, Kim. "Colloidal monolayers and multilayers as templates for nanostructure control." *Book of Abstracts, 219th ACS National Meeting, San Francisco, CA, March 26-30, 2000*, PHYS-177.

Firestone, Kimberly A.; Jiang, Peng; Colvin, Vicki L. "Planar Colloidal Crystals: Colloidal monodispersity and crystalline quality." *Book of Abstracts, 218th ACS National Meeting, New Orleans, August 22-26, 1999*, COLL-096.

Briskman, Ari J.; Jiang, P.; Firestone, K.; Colvin, V.L. "Macroporous Conducting Polymers." *Book of Abstracts, 218th ACS National Meeting, New Orleans, August 22-26, 1999*, CHED-161.

AFFILIATIONS

American Chemical Society
Division of Polymeric Materials: Science and Engineering

**HONORS AND
ACTIVITIES**

Dow Chemical Company Outstanding Graduate Student Award (2000)
President's Honor Roll (1999)
Vice President's Appreciation Award (1998)
Coordinator, Students Organized Against Rape, Rice University (1997-1999)
Choreographer, Rice University College Musicals: *Cabaret* (1999) & *Godspell* (1998)
National Merit Scholar (1996)
Advanced Placement National Scholar (1996)
Ten-time National Science Olympiad Medalist (1994, 1995, 1996)
Fourth Place, Department of Energy National Science Bowl (1996)
Sell artwork on commission and teach related classes (1993-present)