

Alfred University graduate student receives Corning Foundation Fellowship

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John Rich, a student in the Ph.D. program in Glass Science in the Kazuo Inamori School of Engineering at Alfred University, has been named a Corning Incorporated Foundation Science Fellow. Rich was selected by a faculty committee from among the Ph.D. students enrolled in the Inamori School of Engineering, based on his academic performance and research proposal, according to Dr. Doreen Edwards, associate dean and director of graduate education. Dr. James E. Shelby, professor of Glass Science, is advising Rich. The Corning Incorporated Foundation Science Fellowship offsets tuition and provides a stipend to support Rich's research. His current project, "Metallic Colloid Formation in Glass," will explore the formation of metallic nanoparticles in glasses through exposure to a hydrogen-rich atmosphere. "The possibility of creating metallic alloys in glasses, and understanding the mechanisms that govern this reduction process is exciting and appears to be very promising," said Rich. While metallic colloids have long been used to color glasses, Rich said he hopes his research will produce novel alloys with specific magnetic and other desirable properties. He points to nickel and cobalt colloids that Shelby and other Alfred researchers have been working on that may be useful in treating malignant tumors. Other colloids formed with germanium may have luminescent and charge-retention properties that make them useful in photonic and semiconductor technologies. Criteria for selecting Corning Incorporated Foundation Fellows include: academic standing (must be in the top 20 percent of current class and demonstrate mastery of his or her chosen discipline); evidence of "careful, adept and creative thinking in his or her work;" the ability to produce high-quality research; an active interest in pursuing a career as an industrial scientist; and a commitment to participate in the biennial conference of the Corning Incorporated Foundation Science Fellows held in Corning, NY. A 2006 magna cum laude graduate of the Inamori School of Engineering with a degree in Materials Science and Engineering, Rich earned his M.S. degree in fall 2008, completing a thesis entitled "Hydrogen Separation and Purification from Mixed Glass Streams Using Hollow Glass Microspheres," also with Shelby. Rich was drawn to Alfred University - and its programs in Materials Science and Glass Science - by his uncle, the late Curtis Scott, a 1972 alumnus of the University who went on to earn his master's and Ph.D. degrees from AU, just as Rich plans to do. His cousin, Timothy Scott, also attended the Inamori School of Engineering, graduating with a B.S. degree in Materials Science and Engineering. Curtis and Timothy Scott "would talk about what they did, and I was intrigued," said Rich. "I have always looked up to my uncle, and Alfred seemed like a perfect opportunity to learn about something incredibly fundamental - materials - just like they did." Rich has "always collected rocks and minerals, so I suppose materials have always been fascinating to me. Why do they look the way they do? How do they form? How do they exhibit color? I used to wonder those things, and now I have a whole new perspective. I love a challenge and that is what Alfred has offered me." He joked that he "chose Glass Science for my final two degrees because I love adding disorder to my life." (Glass has an atomic structure much more disordered than crystalline materials.) His Ph.D. thesis project actually arose from work he and a fellow student did as undergraduates. "We made some glasses containing nickel or iron, and reduced them using carbon monoxide." The glasses turned out to be magnetic. Intrigued, Rich talked to Prof. Shelby about reducible ions in glasses. "Two years later, I'm working with him on exactly that," said Rich. "I could not have asked for things to work out better." As an undergraduate at Alfred University, Rich was inducted into the Alpha Lambda Delta, Keramos and Tau Beta Pi honor societies, and received the Faculty Award as the Most Outstanding Ceramic Engineering and Materials Science student during his junior year. A graduate of

Springville-Griffith Institute High School, Rich is a son of Rodney and Karen Rich of Springville, NY.