



Steinbrenner Institute Announces the 2013-2014 Doctoral Fellows

The Steinbrenner Institute is pleased to announce our new class of Graduate Research Fellows for 2013-2014. There are three new Steinbrenner Institute Graduate Fellows and one new Steinbrenner Institute Robert W. Dunlap Graduate Research Fellow. The fellows will be exploring research topics that are in alignment with the strategic interests of the Steinbrenner Institute and our affiliated faculty and centers.

Xiang Li, Mechanical Engineering

Project Team: Albert Presto (Mechanical Engineering)

Xiang received his bachelor's degree in Environmental Engineering from Nankai University, China in 2012 and he is originally from Lanzhou, China. He is currently a second year Ph.D. student in Mechanical Engineering department and the Center for Atmospheric Particle Studies (CAPS) at Carnegie Mellon University, working with Professor Albert A. Presto. His academic interest is in understanding the air pollution sources and the chemical and physical processes that pollutants (especially atmospheric particles) undergo in the atmosphere. His current research project is to characterize vehicle emissions via measurement in the Fort Pitt Tunnel, in Pittsburgh, Pennsylvania to assess the contribution of vehicle emissions to atmospheric pollution.

Jeffery Song, Engineering and Public Policy

Project Team: Mitch Small (Civil and Environmental Engineering/Engineering and Public Policy), Paul Fischbeck (Engineering and Public Policy/Social and Decision Sciences) and Jeanne VanBriesen (Civil and Environmental Engineering)

Jeffery is originally from Houston, Texas. He attended Johns Hopkins University and graduated with a Bachelor of Science in Environmental Engineering and Applied Mathematics & Statistics. While at Johns Hopkins, he was a part of the Guikema Research Group working on urban drinking water infrastructure reliability. His general research interest is the mathematical modeling of urban environmental systems, specifically concerning issues related with water quality and water use. Jeffery's project looks at risk that invasive fish species pose to the ecosystem of many US water bodies. The most effective method of invasive species management is early detection. One new method that has been growing rapidly in popularity, due to its high detection sensitivity and specificity, is environmental DNA (eDNA) sampling. In this method, water samples are assessed for the presence of a target species' DNA, which is shed through normal activity (skin cells, semen, feces, etc.), to infer the target species' presence or absence. However, current understanding of how DNA is shed, moves and degrades in water is very limited. The purpose of his project is to better understand the relationship between fish density and the probability of DNA detection in order to inform more effective use of this method in invasive species management strategies.

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Fan Tong, Engineering and Public Policy

Project Team: Paulina Jaramillo (Engineering and Public Policy) and Ines Azevedo (Engineering and Public Policy)

Fan is originally from Beijing, China. He received his B.E. in Electrical Engineering from Tsinghua University. Fan worked at a premier national research institute in China for two years before deciding to devote his career to solving the energy and climate change issues. His research interests include energy economics, energy modeling and climate change. He joined the department of Engineering and Public Policy at Carnegie Mellon in the fall of 2012. His current research is exploring the "switch to gas" that is being promoted by growing production of shale gas. Fan is developing and applying a partial equilibrium model to evaluate the comparative strengths and weaknesses of natural gas consumption pathways for the period from 2010 to 2035. His work should provide insights on the society-wide effects of future natural gas consumption pathways and help to support the development of policies designed to make the most effective use of America's new found abundant natural gas resources.

Andrew Hamman, Engineering and Public Policy

**Robert W. Dunlap Fellow*

Project Team: Gabrielle Hug (Electrical and Computer Engineering)

Andrew is originally from Pflugerville, Texas and he graduated from the University of Texas at Austin in May 2012 with a B.S. in Electrical Engineering. While an undergraduate, he interned for 15 months in the market strategy group at the Lower Colorado River Authority, an electric and water utility based in Austin, Texas. His experience there motivated him to attend graduate school to study and research the engineering and policy aspects of power systems. His research interests are centered on how electric utilities can more efficiently use existing generation and infrastructure. His research objective is to model the hydrothermal power system with greater temporal and spatial resolution, enabling us to more confidently assess the value of hydropower for balancing renewable intermittency. Effectively using existing hydropower resources will enable system operators to build out more wind and solar power as we continue the transition to green, renewable energy.

Congratulations to all of the Steinbrenner Doctoral Fellowship recipients and best wishes for a productive year of research!