Through a gift from AES Corporation, the University of Virginia College and Graduate School of Arts & Sciences and the Department of Chemistry created the AES Graduate Fellowships in Energy Research Program. This program funds up to five graduate fellowships per year in the Department of Chemistry for students performing fundamental research focused on energy science. The Chemistry Department is pleased to announce the recipients of the 2014-2015 AES Graduate Fellowships: Monica McEntee (Yates research group), Yifeng Song (Harrison research group), Tristan Gray (Gunnar research group), Jiliang Ma (Yates research group) and Michael Webster-Gardiner (Gunnar research group).

AES Fellows for 2014-2015

Pictured (left to right): Yifeng Song, Michael Webster-Gardiner, Monica McEntee, Tristan Gray and Shiliang Ma

Monica McEntee (Yates research group)

Monica McEntee is a rising fifth-year graduate student in the Yates group. Monica graduated magna cum laude from Virginia Tech with a dual B.S. degree in Chemistry and Mathematics. She received several awards at Virginia Tech including the Linwood Keyser Award, the Chemistry Department Academic Excellence Award, and the Walter B. Ellett Memorial Scholarship. As an undergraduate researcher, Monica worked with Dr. John Morris studying surface reactions and mechanisms of fullerenes and pentacene exposed to
Shiliang Ma (Yates research group)

Shiliang Ma is a second-year graduate student in the Yates research group. Shiliang graduated with his B.S. and M.S. from Zhejiang University in China where his work was focused on the modification of TiO_2 to enhance its performance for photocatalytic hydrogen generation from water splitting. His research at the University of Virginia is focused on studying the influence of single wall carbon nanotube (SWCNT) and graphene on electrons and holes behavior in TiO_2 by photoluminescence (PL) in a high vacuum system. His research will give fundamental insights to the design of more efficient photocatalysts for the utilization of solar energy.

Yifeng Song (Harrison research group)

Yifeng Song graduated from University of Science and Technology of China with a B. S. in Chemistry where his work was focused on investigating the mechanism of formic acid electrocatalytic oxidation on Pt electrodes, which is relevant to fuel cell industry. As a graduate student entering the third year, Yifeng started his research on the alkane decomposition kinetics and mechanisms on catalytic metal surfaces using a combination of techniques (ultra-high vacuum instruments, molecular beams, infra-red spectroscopy, etc.). The goal of his research is to provide fundamental insights for designing more efficient catalysts that are essential to the industrial natural gas conversion.

Michael Webster–Gardiner (Gunnoe research group)

Michael is a third-year graduate student in the Gunnoe group. Originally hailing from England, Michael immigrated to Florida and graduated magna cum laude from the Wilkes Honors College of Florida Atlantic University. As an undergraduate he was awarded a National Science Foundation scholarship and a Kenan Science scholarship. He also worked with Professor Roy Periana at the Scripps
Research Institute on the synthesis and reactivity of organometallic complexes of iridium and iron in aqueous and basic media. At the University of Virginia Michael's research is focused on first-row metal complexes for oxygen atom insertion into metal-alkyl bonds, as well as synthesizing rhodium complexes for methane C-H activation in acidic media. These are both key steps in transition metal mediated catalytic cycles for methane to methanol, the aim of which is to convert natural gas to liquid fuels and other desirable commodity chemicals.

Tristan Gray (Gunnoe research group)

Tristan Gray graduated from Iowa State University with a B.S. in chemistry and a minor in mathematics. While at Iowa State University he coauthored two papers on iridium catalysts and was awarded the Plagen Research Fellowship. He also participated in the Science Undergraduate Laboratory Internship (SULI) program at Ames National Lab for two summers. Tristan is entering his fourth year of graduate studies in the Gunnoe group with his research focused on new catalysts for the production of alkyl and vinyl arenes. An emerging area in catalysis that blends the traditional disciplines of homogeneous and heterogeneous catalysis is the preparation and use of heterogeneous materials that support well-defined molecular catalysts. Tristan is working to design, prepare and study molecular catalysts supported on various nanoparticles. One area of emphasis has been the development of platinum(II) catalysts immobilized on mesoporous silica nanoparticles (MSN) supports with the goal of improving catalyst stability and longevity.