Russell Bradt Undergraduate Colloquium
Department of Mathematics
University of Kansas

Susan Stagg-Williams
Associate Professor
Chemical & Petroleum Engineering
University of Kansas

Susan Stagg-Williams graduated with a B.S. degree in Chemical Engineering from the University of Michigan in 1994. She received her Ph.D. in Chemical Engineering from the University of Oklahoma in 1999. Susan joined the KU faculty in the fall of 1999 and will be a full professor in August of 2013. Susan has an active research program specializing in catalysis for the production of alternative fuels including synthesis gas and bio-based fuels. She is also interested in correlating feedstock composition to fuel properties in order to be able to predict thermochemical properties of biofuels as well as engine performance. Susan is the co-originator and director of the KU Biodiesel Imitative which converts used cooking oil from the campus dining services into high quality transportation fuel. She is also the leader of the "Feedstock to Tailpipe©" research team which looks at sustainable feedstocks for the production of next generation liquid fuels. The multidisciplinary team includes more than 25 faculty, scientists, and students from chemical, mechanical and civil, architectural and environmental engineering, as well as ecology and evolutionary biology, and geography. The team is currently investigating the production of biofuels from waste-water fed algae.

April 23, 2013
4:00 pm
306 Snow

From Waste to Value

Algae as a biomass feedstock for fuels and chemical has significantly grown in popularity in the past decade, due to their high growth rate, high lipid content, and CO2 neutrality. In addition, algae do not compete with human food sources. Recent studies have shown that biofuels from algal feedstocks are more economically viable if the algae is grown in conjunction with wastewater treatment plants; using free nutrients such as nitrogen and phosphorous found in the wastewater effluent rather than purchasing fertilizers for algal growth. There is an additional environmental benefit of removing such nutrients before they enter rivers, lakes and oceans by minimizing unnatural algal blooms which can cause anoxic zones.

This talk will discuss studies converting micro- and macroalgae grown in pilot scale tanks fed with effluent from the second clarifier at the Lawrence, KS wastewater treatment plant into higher value products. The thermochemical conversion pathway, or hydrothermal liquefaction (HTL), has processing advantages over conventional algal lipid extraction. In addition, the process results in the production of a biocrude, a residual solid, and an aqueous co-product all of which have potential value and commercial applications.

Refreshments will be served at 3:30 in 406 Snow