

FACULTY COLLOQUIUM
Wednesday
October 3, 2012
UC 222
12-12:50pm

**Improving the Utilization of
Natural Gas and Solar Energy
via Conversions into Liquid
Fuels**

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Both natural gas and solar energy are available on larger scales than the world's petroleum resources, and they offer potential advantages with respect to minimizing emissions of the greenhouse gas carbon dioxide. Unfortunately, they have been underutilized, partly due to problems with their storage and transportation.

Natural gas is mainly composed of methane (CH_4), a gas with a boiling point of $-162\text{ }^\circ\text{C}$. This makes the transportation of natural gas both difficult and expensive. Ideally, the methane could be directly converted at low temperatures into a valuable and easily transportable liquid such as methanol (CH_3OH). Undergraduate researchers at Colorado Mesa University are currently investigating the prospect of using gold complexes to facilitate this reaction.

In order to utilize solar energy on a scale comparable with fossil fuels, a method must be found to efficiently and inexpensively store it

for times when light from the sun is unavailable in a particular area. Undergraduate researchers at Colorado Mesa University are addressing this challenge through the search for inexpensive molecules that could efficiently combine solar electricity with carbon dioxide to generate liquid fuels. These fuels could be stored and burned for energy in a similar manner to fossil fuels, but because they would be generated from carbon dioxide and solar electricity, their use would not result in an increase of atmospheric carbon dioxide levels.

Please come with your lunch, bring your faculty and staff colleagues, and enjoy the third presentation of the fall Colloquium series

