

UNL Department of Physics and Astronomy presents:

# Progressive Switch From Petroleum to Methane and Its Challenge

PRESENTED BY  
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**THURSDAY**  
**JANUARY 20**  
**4:00 PM**  
**VIA ZOOM**

Refreshments will be  
served in the JH 1st  
Floor Vending Area at  
3:30

## ABSTRACT

Petroleum has been the main source of chemical and fuel production for decades. Driven by the diminishing source and request of environmental mitigation, a progressive switch of petroleum to methane has started in the last decade. However, this switch has been challenged by available processes of efficient chemical transformations of methane to value-added chemicals and fuels. Another associated challenge is the management of methane emission due to the more severe green-house effect of methane in contrast to carbon dioxide, a main by-product of the petrochemical industry. To utilize methane with high energy efficiency, chemical transformation at low temperature is requested. The bottleneck of the low-temperature chemical process is the lack of catalysts with high activity and selectivity. In this colloquium, I will brief the switch from petroleum to methane, present the high-temperature and low-temperature transformations of methane, introduce the emission of methane to the ambient environment and discuss the strategies for managing methane emission.



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