

## Catalysis Club of Philadelphia

Thursday, November 19<sup>th</sup>, 2015

DoubleTree Hotel

4727 Concord Pike Wilmington, DE 19803

### Catalysis for renewable fuels and chemicals: Challenges today and a look into where we are going

John Holladay

*Biomass Sector Manager and Associate Director of the Institute  
for Integrated Catalysis, Pacific Northwest National Laboratory*

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**Social Hour: 5:30 PM**

**Dinner: 6:30 PM**

**Meeting: 7:30 PM**

**Members: \$35.00**

**Walk Ins & Non-members: \$40.00**

**Student & Retired Members: \$20.00**

#### ***Menu (served as a buffet) \****

**Rosemary Dijon Chicken** – sautéed chicken breast with roasted cherry tomatoes and a rosemary Dijon cream sauce served with roasted potatoes and fresh green beans;

**French Cut Pork Chop** – Twice baked maple sweet potatoes, sautéed green beans, and a bourbon glaze;

**Veg Filo Triangle** – roasted vegetables wrapped in filo dough;

*\*All dinners served with Caprese salad (baby romaine, cherry tomatoes, fresh mozzarella, basil and champagne vinaigrette), rolls and butter, chef's choice of desserts, coffee, tea, iced tea, decaf, and water.*

**Meal reservations** - Please notify your company representative or Alex Mironenko ([alexmir@udel.edu](mailto:alexmir@udel.edu)) by **Thursday, November 12<sup>th</sup>**, or register online:

[http://catalysisclubphilly.org/  
program/meeting-registration/](http://catalysisclubphilly.org/program/meeting-registration/)

**Membership** - Dues for the 2015-16 season will be \$25.00 (\$5.00 for the local chapter and \$20.00 for the national club). Dues for students, post-docs and retirees will be \$10.00 (\$5.00 for local club and \$5.00 for national club).

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**Abstract** — Renewable carbon sources, such as biomass and sugars, offer alternative starting materials for producing fuels and chemicals. However, catalysis of highly oxygenated materials, often operating in the condensed phase, present substantial challenges with catalyst deactivation due to poisoning and reactor bed/support stability. In essence, the catalysts developed within the petrochemical industry are often not suitable and new solutions are needed if we are to match the efficiency that has been born from nearly 90 years of science and technology aimed at hydrocarbon processing.

In covering challenges today we will survey two families of catalytic technologies that produce fuels—with an emphasis on distillates and mid-distillates and chemical products. These technologies will cover (i) upgrading of oxygenates (from alcohols to complex bio-oils) and (ii) catalysis of fermentation derived molecules that have been minimally processed. The primary focus will be on problems and specific solutions that allowed long term, stable and efficient operation under continuous reaction conditions suitable for industry.

In part 2 of the lecture we will take a forward look toward where we would like to move the state of catalyst technology to allow processing of a broader range of carbon from waste resources at the (small) size of the point source while keeping capital and operating cost low. Such feedstocks include gaseous streams, such as CO-rich off gas; wet streams from food processing and waste water sludges; as well as dry streams from agriculture and forest residues or municipal solid waste.

*[catalysisclubphilly.org](http://catalysisclubphilly.org)*

**Biography** — John Holladay joined the Pacific Northwest National Laboratory (PNNL) in 2001 after working for five years at Union Carbide in South Charleston, WV. John currently serves as the Biomass Sector Manager at PNNL, where he is responsible for shaping PNNL’s strategy and vision for renewable fuels and chemicals. The program focuses on multiple areas including: developing cost-effective catalysts for renewable carbon conversion, learning from the efficiency that fungi offers for naturally processing biomass, and understanding alternative means for producing biomass in waste streams that are wet/dry or gaseous. He facilitates PNNL’s collaboration with others in academia, industry and government to advance the nation’s biofuels research. He served as Chief Scientific Officer for the National Advanced Biofuels Consortium, Chief Operations Officer for the National Alliance for Biofuels and Bioproducts and is currently an Associate Director of the Institute for Integrated Catalysis at PNNL.

