



# Inorganic Chemistry Seminar Series

Tuesday, October 17, 2017, 12:30 pm  
Seaver Science Library, Room 150

## Professor Natalie Stingelin

*Department of Chemistry  
Georgia Institute of Technology*

### **The Power of Materials Science Tools for Gaining Insights in Solution-processed Optoelectronic Devices**

#### **Abstract:**

Significant progress has been made in the past decade in the fabrication of organic and inorganic/organic hybrid devices, such as organic light-emitting diodes (OLEDs), organic field-effect transistors (OFETs) and organic photovoltaics (OPVs), largely due to important improvements in existing materials and the creation of a wealth of novel compounds. Yet many challenges remain. For example, in the field of OPVs and their solution-processable counterparts such as perovskite solar cells, we don't well understand which structural and electronic features determine the short-circuit current ( $J_{sc}$ ), open-circuit voltage ( $V_{oc}$ ) and fill factor. Here, we attempt to obtain further insight of relevant structure/ processing/ performance interrelations using classical polymer processing "tools." We present a survey on the principles of structure development from the liquid phase of this material family with a focus on how to manipulate their phase transformations and solid-state, tailor and tune the final 'morphology' towards technological and practical applications, and establish correlations with relevant device characteristics. This discussion will include the interrelation of intermixed phase with charge transfer absorption.

Hosted by Professor Mark Thompson

*The scientific community is invited*

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