



Hosted by Michael Haley

Dept. of Chemistry and Biochemistry

Organic/Inorganic Seminar Series presents:

**Psaras L. McGrier**

The Ohio State University

**Friday, October 27, 2017**

2:30–3:30 pm, 331 KLA

Coffee reception @ 2:00 pm, 377 KLA

## ***The Synthesis and Design of Functional Covalent Organic Frameworks***

**ABSTRACT:** Covalent organic frameworks (COFs) are a class of advanced materials that are composed of light elements (C, H, O, N, and B) linked via strong covalent bonds. COFs are generally constructed by using reversible bond forming reactions to yield crystalline materials with high surface areas, low densities, and high thermal stabilities. These features make COFs useful for carbon capture, gas storage, and sensory applications. This lecture will discuss employing a bottom-up approach to create novel functional COFs that can bind small metal cations (e.g., Li, Ca, etc.), and some low-oxidation state transition metals (e.g., Ag(I), Co(II), Fe(II), etc.). The prospect of utilizing these COFs for applications related to carbon capture, hydrogen gas storage, chemical separations, and catalysis will be highlighted.

**BIOGRAPHY:** McGrier received his B.S. in Chemistry from the U. of South Carolina–Aiken in 2004 and his Ph.D. in Organic/Polymer chemistry from the Georgia Institute of Technology in 2010 under the direction of Professor Uwe Bunz. During his time in the Bunz group, Psaras studied the photophysical properties of hydroxy-substituted distyryl-benzenes and cruciform fluorophores (XFs), a class of cross-conjugated materials with spatially separated frontier molecular orbitals.

After finishing his Ph.D., he moved to Northwestern Univ. (2010-2013) to join the group of Prof. Sir Fraser Stoddart as a postdoctoral scholar on a fellowship from Georgia Tech Facilitating Academic Careers in Engineering and Science (FACES) committee and the National Science Foundation (NSF). His research in the Stoddart group focused mostly on the synthesis and design of novel zirconium-based metal-organic frameworks, and the development of donor-acceptor [2]catenanes that can function as molecular switches in water. Psaras joined The Ohio State University Chemistry & Biochemistry Department in August 2013.