

FALL 2021  
CHEMISTRY  
SEMINAR SERIES



DR. ROBERT J.  
GILLIARD, JR.

Department of Chemistry  
University of Virginia

HOST:  
DR. JAEKLE

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ATTEND

RUTGERS  
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Department of Chemistry  
73 Warren Street, Olson Hall  
Newark, New Jersey  
<https://sasn.rutgers.edu/chemistry>

“Electronic Tuning in the Main-Group: From Subvalent Organometallics to Novel  $\pi$ -Electron Materials”

Friday, October 1, 2021, 11:30 AM  
Life Science Center II, Room 130

**Abstract:** Research efforts in the Gilliard laboratory span diverse areas of chemical synthesis related to the activation of inert chemical bonds, energy storage, and molecular hybrid materials chemistry. Our work with s-block metals has resulted in a number of advances in the low-valent and hydridic chemistry of the alkaline earth metals (e.g., beryllium, magnesium), including molecular models for hydrogen storage. Recently, we have begun to study heterocycles “doped” with p-block elements for the development of new  $\pi$ -electron materials with unusual bonding and photophysical properties. This has led to the first examples of pyrene-fused N-heterocyclic germynes and boranes, thermochromic and thermoluminescent borafluorene materials, and stable borafluorene radicals. Our primary goal has been to isolate molecules in rare electronic states and to provide a link between structure and function. This presentation will highlight our most recent results in these research areas.

**Biographical sketch:** Prof. Gilliard is a native of Hartsville, South Carolina. He obtained his bachelor’s degree in chemistry at Clemson University where he was an undergraduate researcher in the laboratory of Prof. Rhett C. Smith. He earned his doctorate in chemistry at The University of Georgia with Prof. Gregory H. Robinson. Gilliard was a Merck Postdoctoral Fellow and a Ford Foundation Postdoctoral Fellow where he completed his studies working jointly at the Swiss Federal Institute of Technology (ETH Zürich) with Prof. Hansjörg Grützmacher and at Case Western Reserve University with Prof. John Protasiewicz. Gilliard joined the faculty at the University of Virginia as an Assistant Professor of Chemistry in the Fall of 2017. He has received several awards and honors: named to Forbes Magazine 30 under 30 list in Science, *Inorganic Chemistry* and *Chemistry-A European Journal* Emerging Investigator, *Chemical and Engineering News* Talented 12 Scholar, Scialog Fellow, National Science Foundation CAREER Award, Alfred P. Sloan Research Fellow, 3M Non-Tenured Faculty Award, *Organometallics* Distinguished Author Award, Beckman Young Investigator Award. He also serves on the editorial advisory board for *Chemical Communications*, *Chem Catalysis*, *Inorganic Chemistry*, and the International Advisory Board for *Angewandte Chemie*.