

William C. K. Pomerantz, Professor of Chemistry at University of Minnesota, will deliver the PLU Lecture in Chemistry. Dr. Pomerantz will present “Chemical Epigenetics Approaches for Developing Selective Inhibitors and Degradable Bromodomain-Containing Proteins” at 1:05 pm on Thursday, April 27th, in 4 King Hall.

Abstract: Fluorine is the thirteenth most abundant element in the earth’s crust and most abundant halogen but remains largely absent from nature’s most essential biopolymers and natural products. Despite this absence in biology, organofluorine compounds hold significant promise for impacting human health, including for imaging applications (18F PET and 19F MRI), structural biology, drug screening, and drug development. As one innovation in our lab, we develop protein-observed 19F NMR (PrOF NMR) approaches using 19F-labeled protein side-chains that are enriched at protein-protein-interaction interfaces. We use PrOF NMR for characterizing protein-protein, nucleic acid interactions, and drug discovery applications. This talk will describe several case studies where PrOF NMR has been applied for fragment screening, ligand deconstruction, and screening of protein mixtures to develop inhibitors of epigenetic complexes. New applications towards large and multi-domain proteins will also be highlighted.

Bio: William C. K. Pomerantz is a McKnight Presidential Fellow and Merck Professor Chemistry in the Department of Chemistry at the University of Minnesota. Prof. Pomerantz received his B.S. in chemistry from Ithaca College in 2002, followed by a Fulbright Fellowship at ETH, Zürich with Professors François Diederich and Jack Dunitz. He obtained a Ph.D. in chemistry under Professors Sam Gellman and Nick Abbott at the University of Wisconsin-Madison and was a postdoctoral fellow under Prof. Anna Mapp at the University of Michigan. He joined the chemistry faculty at the University of Minnesota in 2012 and was granted tenure in 2018. His research focuses on the development of chemical biology and medicinal chemistry approaches for modulating protein-protein interactions involved in transcriptional complexes, most notably those involved in promoting cancer and inflammatory disease. Protein-Observed Fluorine NMR (PrOF NMR) is one such tool in his lab that is being developed as a new method for fragment-based drug discovery (FBDD). PrOF NMR has been applied towards inhibitor development for a diverse class of epigenetic protein complexes, as well for the characterization of large macromolecular complexes, including those involving large protein-protein interactions, nucleic acids, and intrinsically disordered proteins.

Prof. Pomerantz’s research and teaching had been recognized through several awards including a Sidney Kimmel Cancer Scholar award, an NSF CAREER award, a Cottrell Scholar Award, an ICBS Rising Star in Chemical Biology award, and a George W. Taylor Distinguished Teaching award. Prof. Pomerantz is currently the global council co-chair for the International Chemical Biology Society, Vice-chair for the Early Career Board Member for ACS Med. Chem. Lett, councilor for the American Chemical Society, and standing member of the NIH Chemical Biology and Probes study section. He has published 85 manuscripts and book chapters and has given over 110 seminars on his lab’s research. Further details about his research can be found here: <http://pomerantz.chem.umn.edu/>