

THE 74TH IRA REMSEN MEMORIAL LECTURE



FEATURING: PROF. THOMAS WILLIAM MUIR

Van Zandt Williams Jr. Professor of Chemistry

Professor of Chemistry and Associated Faculty in Molecular Biology

Princeton University

JANUS PARTICLES: THE ROLE OF MOLECULAR SYMMETRY IN EPIGENETIC REGULATION

Thursday, October 13, 2022

Remsen 1, 6:30 PM

Pre-seminar refreshments, Remsen 140

Reception immediately following, Remsen 140

Abstract: We are broadly interested in studying protein function by integrating the tools of synthetic organic and physical chemistry with those of molecular genetics. Over the years, we have developed chemical biology approaches that allow the covalent structure of proteins to be manipulated with a similar level of control to that possible with smaller organic molecules. These protein-engineering technologies, which can be applied both *in vitro* and *in vivo*, allow the insertion of unnatural amino acids, posttranslational modifications and isotopic probes site-specifically into proteins. The major focus of the group currently lies in the area of epigenetics, where we try to illuminate how chemical changes to chromatin drive different cellular phenotypes. Ongoing work in this area focuses on understanding how mutations to the histone packaging proteins leads to various cancers, as well as how native chromatin structure is regulated intrinsically by post-translational modifications, and by the action of large molecular machines that remodel chromatin in the nucleus. Recent progress in these areas will be discussed.