SCHOOL OF NATURAL SCIENCES

SEMINAR SERIES

Exploring the utility of transition metals in powering metalloenzymes and designing metallo-drugs

Dr. Morrison's work explores the utility of transition metals in powering metalloenzymes and designing metallo-drugs. Her thesis work contributes to our understanding of biological nitrogen fixation through investigations of nitrogenase. In one study, she elucidated a reversible protonated resting state of nitrogenase, which offers insight into the changes that occur at the iron-sulfur cluster in the nitrogenase active site. In Dr. Morrison's postdoctoral work, she is building a new fragment-based approach to drug discovery that harnesses the 3D topology of metal complexes. Using a protein from the influenza A virus, this 3D fragment approach has resulted in metallo-inhibitors with novel modes of inhibition that are being further developed as drug molecules against the influenza virus. Overall, her work explores how transition metals can be incorporated into biological and synthetic molecules to serve as catalytic centers or useful structural scaffolds. Her future research interests apply these concepts to: (1) understanding metalloenzyme activation and function, (2) designing metallo-drugs to inhibit RNA, and (3) building conductive metallo-materials incorporating iron-sulfur clusters.

Monday, 10/22/18	**10:15am - 11:30am**	**S&E I, Rm.270K**	For more information, contact: Professor Anne Kelley at amkelley@ucmerced.edu

Christine N. Morrison

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Christine N. Morrison grew up near Detroit, Michigan. She received her B.S. in Chemistry from the University of Michigan in 2010, performing research with Prof. Adam Matzger on surface chemistry. The following year, she was a Fulbright scholar at the Karlsruhe Institute of Technology in Karlsruhe, Germany, in the laboratory of Prof. Dr. Annie Powell doing research on coordination polymers. She then went on to earn her Ph.D. in Chemistry from Caltech in 2017 under the direction of Prof. Doug Rees. Her thesis work combined structural and spectroscopic techniques to elucidate a reversible protonated resting state of nitrogenase and was funded with a National Science Foundation Graduate Research Fellowship. She is currently a U.C. President's and NIH Ruth L. Kirschstein postdoctoral fellow in the laboratory of Prof. Seth Cohen at U.C. San Diego, where she is leading a new research direction in fragment-based drug discovery using metal complexes. Her research interests include chemical biology and bioinorganic, biophysical, and materials chemistry.