

## ACS-GHS June Seminar Dr. Corina Rogge



**Tuesday, June 29<sup>th</sup>**  
6:30 - 8:00 pm  
via Zoom

Register to receive the meeting link at <https://acsghs.wildapricot.org/event-4271771>

### **The Dating Game: A New Diagnostic Marker for Dating and Provenancing of Titanium White Pigments**

Recent technical studies on paintings by abstract expressionists, including Franz Kline and Barnett Newman, revealed a unique Raman luminescence signature from titanium white paints that also contain calcium or barium sulfate. ICP-MS analysis suggests that the luminescence arises from rare earth elements, likely Nd, that originate in the ilmenite ( $\text{FeTiO}_3$ ) ore and have been trapped in the alkaline earth sulfate during co-precipitation with titanium dioxide with the alkaline earth sulfate. The luminescence is linked to the specific ilmenite source used by the Titanium Pigment Corporation (USA) and is present in a variety of historic Titanox pigments. Detection of this luminescence along with characteristic peaks of rutile, anatase, calcium sulfate or barium sulfate in a single Raman spectrum allows precise identification of the type of titanium white pigment present in a sample and permits a narrowing of the manufacture date range. To date, co-precipitated pigments have been found only in oil paints and not in samples of historic solution or solvent acrylics nor in any samples of historic artists' oil paints held in the Art Materials Research and Study Center at the National Gallery, which date from the 1950s onward. Therefore, detection of co-precipitated pigments in later artworks may be a marker of commercial or industrial oil paints.

**Biography:** Corina (Cory) Rogge is the Andrew W. Mellon Research Scientist at the Museum of Fine Arts, Houston and the Menil Collection. She earned a B.A. in chemistry from Bryn Mawr College, a Ph.D. in Chemistry from Yale University and held postdoctoral positions at the University of Wisconsin–Madison and the University of Texas Health Sciences Center (Houston). Before joining the Museum of Fine Arts, Houston, she held positions as the Weiss Instructor of Chemistry at Rice, and the Andrew W. Mellon Assistant Professor in Conservation Science in the Department of Art Conservation at State University of New York Buffalo State College. She is the Vice President and Fellow of the American Institute for Conservation and an Associate Editor for the Journal of the American Institute for Conservation.