

## ACS September 2009 Regular Meeting

September 21, 2009  
7:00 pm  
101 Koch Center  
University of Evansville

**Speaker:** Dr. Suzanne Quillen Lomax  
National Gallery of Art  
Conservation Division

**Title:** The Application of Chemistry to the  
Examination of Works of Art

**Dinner:** 5:30 pm at Western Ribeye & Ribs  
1401 Boeke RD  
Evansville, IN 47711

*RSVP for dinner by September 18th to Derek Lake*  
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### Abstract

Scientists have been associated with museum conservation laboratories for many years. Only recently, however, have art curators and conservation begun to appreciate the contributions that scientists can make in the preservation and restoration of the art objects. At present, about a dozen museums in the United States have conservation science departments. Art conservation frequently requires specific information about the component materials of a painting or object prior to treatment. Due to the complex stratification of paintings, most questions that arise concern the nature of their components. Microscopic cross sections of a painting are frequently taken and viewed with the polarizing microscope to understand the different layers that make up the object. Pigment identification is frequently employed to determine if the pigments are in keeping with the time period of the object, as well as to understand the artist's materials and methods. Such tasks are performed using polarized light microscopy and X-ray diffraction of powdered samples or X-ray fluorescence, which is well-suited to this talk due to its noninvasive nature. To study the identity of binding media, the conservation scientist uses gas chromatography (GC), high-performance liquid chromatography (HPLC), and infrared spectroscopy. GC is used to identify oil-containing binders, as well

as for the identification of waxes and various low molecular weight resins, HPLC can be used to identify proteinaceous binders and organic dyes. Ultraviolet radiation can be used to examine the varnish layer of a painting as well as to identify areas retouched in previous conservation treatments. Infrared reflectography is frequently used to examine underdrawing on a painting. In addition, X-rays are often used to determine where lead white has been used on a painting, as well as to reveal damaged areas beneath the painting's surface. This talk will focus on the application of these various techniques to the examination of paintings and sculpture. Examples will be presented from the National Gallery of Art collection.