



# Archaeological Chemistry of Ancient Rock Paintings

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*As an archaeological chemist, I collaborate with archaeologists to apply analytical chemistry techniques to the study of ancient rock paintings. My laboratory specializes in using a glow discharge for radiocarbon dating sample preparation. To obtain direct dates for paintings, we employ plasma oxidation of the organic binders in the paint layer followed by accelerator mass spectrometry. For minimum and maximum ages, we acid treat overlying and underneath accretion layers to isolate calcium oxalate for combustion and C-14 measurement. Radiocarbon results are calibrated using the OxCal computer program to produce calendar age ranges. In addition, we conduct mineral analyses on samples in order to identify pigments used by ancient artists. Methods used include Fourier transform infrared spectroscopy, X-ray diffraction, and portable X-ray fluorescence spectroscopy. Recent work has focused on rock paintings in the Western Desert of Australia and the Lower Pecos Region of southwest Texas.*

**Friday September 6, 2019**  
**Reception: 5:30 p.m.**  
**Talk: 7:00 p.m.**

**Butler University**  
**Robertson Hall**  
**Johnson Board Room**

**RSVP:** <https://www.eventbrite.com/e/chemistry-and-archeology-tickets-69069012275>

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