

Title: Using melanosomes in modern bird feathers to determine melanin-based colors of some dinosaurs

Speaker: Jennifer Peteya

Abstract:

Color reconstructions of extinct animals were once thought impossible. However, in 2008 Jakob Vinther re-interpreted microbodies preserved in a fossil feather as melanosomes (melanin-containing organelles) rather than bacteria. The size and shape of melanosomes in modern bird feathers correlates to the color of the feather (e.g. black feathers contain pill-shaped melanosomes while rusty-red feathers contain smaller, near-spherical melanosomes). Using the size and shape of melanosomes preserved in fossil feathers, we can interpret the original melanin-based color of some dinosaurs. Color reconstructions are important because they can inform us about the animal's behavior, physiology, habitat, and anatomy. However, melanosome morphology does not correlate to color for all modern or fossil animals. In this presentation, I will discuss the techniques we use to determine fossil color as well as how we use fossil melanosome studies to make interpretations about the lives and habits of extinct animals.

Bio:

I am a paleontologist who grew up finding Paleozoic crinoid, brachiopod, and coral fossils in North Canton, Ohio. In 2010, I received my Bachelor of Science degree in Geology at Mount Union College in Alliance, where I also majored in Art and minored in Biology. For my undergraduate thesis, I had the opportunity to study Paleozoic rocks in the Gobi Desert of Mongolia. I received my Master's degree from The Ohio State University School of Earth Sciences in 2013 for work on the exceptionally-preserved guts of trilobites from Morocco and Utah. I am now a Ph. D. candidate in the Integrated Biosciences Program at The University of Akron working with Dr. Matthew Shawkey (now at The University of Ghent in Belgium) on color reconstructions of extinct animals as well as the evolution of melanin and melanosomes.