



McPherson
Eye Research Institute

UNIVERSITY OF WISCONSIN-MADISON

MERI Visiting Scholar Lecture



Date: Tuesday, May 28th, 2024

Time: 12:00pm-1:00pm

Location: [1360 Biotech](#)

[Please RSVP here](#)

“The early evolution of amniotes and their unique sensory structures”

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Abstract: The close relationship between reptiles and mammals, together forming Amniota, was first recognized with the advent of modern phylogenetic systematics. Recently, however, the basal branches that represent the early phases of amniote evolution have shifted dramatically between studies. Without a stable phylogenetic hypothesis, our ability to interpret the evolutionary relationships of early-diverging amniotes, particularly stem reptiles, is limited at best. To address this issue of uncertain evolutionary relationships, I developed a comprehensive morphological phylogenetic dataset spanning from the late Carboniferous through the Triassic. In this framework, I will discuss Permian stem reptile *Bolosaurus major*. Detailed examination of *B. major* also reveals unique sensory structures that illuminate the evolution of hearing in the Permian. Furthermore, tracing the evolution of sensory structures over the course of the Carboniferous, Permian, and Triassic, can reveal important macroevolutionary dynamics that expand upon our understanding of convergent evolution against the backdrop of Earth’s evolving landscapes. In this case, by tracking the evolution of a specialized sensory organ, colloquially known as the ‘third eye’, I explore amniote’s ability to respond both physiologically and behaviorally to dynamically changing landscapes during the formation of Pangaea and the end-Permian mass extinction.

