UC RIVERSIDE

DEPARTMENT OF ENTOMOLOGY
ENTM250 Seminar Series

Speaker:

Armin P. Moczek, PhD

Professor
Department of Biology
Indiana University

Date: Monday, June 1, 2026
Time: 4:00 pm - 4:50 pm
Format: In-Person Seminar & Virtual Access
Location: Genomics Auditorium 1102A

Zoom: 943 6687 2379
Passcode: 453393

Title:
"On the origins of novelty and diversity in development and evolution: insights through the study of horned beetles"

Abstract:
The origin of novel traits is among the most intriguing and enduring problems in evolutionary biology. It is intriguing because it lies at the heart of what motivates much of evolutionary biology: to understand the origins of exquisite adaptations and the evolutionary transitions and ecological radiations that they enabled. It is enduring because it embodies a fundamental paradox: on the one hand, Darwin's theory of evolution is based on descent with modification wherein everything new, ultimately, must come from the old. On the other hand, biologists are captivated by complex novel traits precisely because they lack obvious homology to pre-existing traits. How, then, does novelty arise from within the confines of ancestral variation? Combining approaches from evolutionary developmental genetics, behavioral ecology, and microbiology my research explores the genetic, developmental, and ecological mechanisms, and the interactions among them, that promote innovation and diversification in the natural world. Most of the work in my research group focuses on the inordinately diverse and bizarre horns of scarab beetles, while side projects have explored the origins of light-producing organs in fireflies as well as the exuberant helmets of treehoppers. In my talk I will first present recent results on the role of developmental repurposing in the evolution of novel morphological traits and developmental functions. In the second half I will discuss the significance of host microbiome interactions and environment-engineering in the origins of novelty, when collectives innovate, adapt and problem-solve in ways single species cannot. Throughout my talk I use our findings to highlight where I believe they expand and revise our current understanding of the genesis of novelty in evolution.

Refreshments will be served in the Entomology Building Courtyard at 3:30pm