

Physics Colloquium

Monday, November 11, 2019 / Pupin Hall Theory Center, 8th Floor / 12:30 PM

Lunch will be available for attendees

“Real Flying Monsters: The Physics of Flight and Gigantism in Pterosaurs”

Michael Habib, University of Southern California



Pterosaurs were the first vertebrate animals to evolve powered flight and conquer the skies. They did so nearly 100 million years before any birds flew. Pterosaurs ruled the air for more than 160 million years before vanishing along with the (non-bird) dinosaurs at the end of the Cretaceous. Over that incredible reign, the pterosaur dynasty evolved some of the most extreme adaptations of any animals, living or extinct. The smallest was the size of sparrow while the largest had wingspans equal to the height of a telephone pole. Some of these winged predators had heads three to four times longer than their bodies, making them, in essence, flying jaws. Pterosaurs lived across every ocean and every continent on Earth. Pterosaurs pushed the limits of vertebrate anatomy and performance, and they have left a frustratingly fragmentary fossil record, leaving us with just a glimmer of their former glory and a host of questions. New fossil discoveries, along with key perspectives from biomechanics, have provided significant recent insights into how such giants evolved, launched, flew, and lived. In this presentation, we will consider how a unique combination of evolutionary history, existing adaptations, environmental factors, and chance events led to the evolution of the greatest air giants to ever fly the Earth.

