

Manel Errando – HEP Seminar – April 1, 2025  
Washington University in St. Louis

Title:

Relativistic jets: what happens when black holes reveal their cosmic appetite?

Abstract:

Black holes of millions to billions of solar masses sit at the center of galaxies, including our own. When these supermassive black holes feed off interstellar gas they produce X-ray bright accretion disks, winds that influence the rate at which stars form in their host galaxies, and relativistic jets that are among the most powerful particle accelerators in the Universe. In this talk, we will start by discussing how measurements of X-ray and gamma-ray emission from relativistic jets can tell us about the impact that supermassive black holes have on their host galaxy environment and beyond. In particular, I will describe recent measurements of X-ray polarization with IXPE and how current and future gamma-ray observatories are bringing us closer to understanding the particle acceleration mechanisms at play in relativistic jets. Finally, we will turn our attention towards observations of the most distant supermassive black holes and discuss new advances in adjustable X-ray optics that will enable future X-ray missions to understand how the first supermassive black holes formed.