

Rodrigo Nemmen (IAG-USP, Brazil): *Active galactic nuclei and blazars*

I will give a broad overview of the phenomenology and theory behind the active galactic nuclei (AGN) phenomenon. I will give a particular emphasis on systems which produce relativistic jets such as blazars, given their importance in multimessenger astronomy. I will cover the basic physics of gas accretion and jet production from Kerr black holes. I will also give an overview of the electromagnetic signature from AGNs and blazars, focusing on their gamma-ray emission commonly observed with the *Fermi*, HESS, MAGIC telescopes, and in the future CTA.

Suggested reading:

1. [Physical processes in active galactic nuclei](#), Blandford (cf. from p171 onwards in the PDF). Even though this is a quite dated treatment—from 20 years ago!—and a lot has changed since then, this paper does a great job in summarising the basic physics of the AGN phenomenon.
2. [Relativistic jets in active galactic nuclei, arXiv:1812.06025](#). Up-to-date review about AGN jets
3. [Foundations of black hole accretion disk theory](#). Focuses on black hole accretion, with a general relativistic treatment