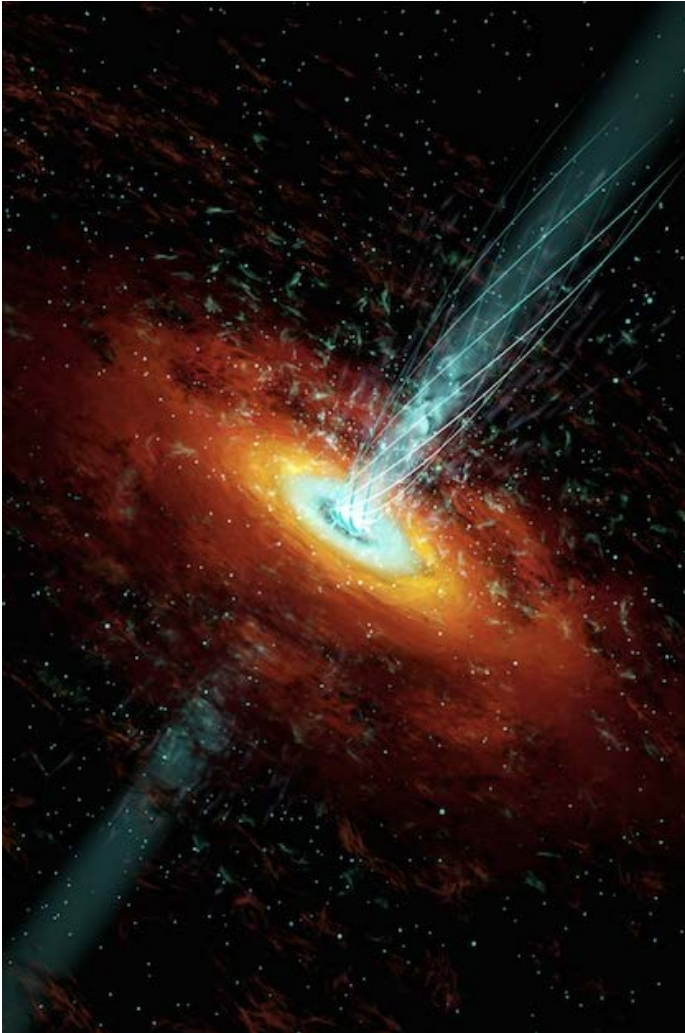


Monster in the Middle: Distinguishing between nearby & distant supermassive black holes



Science Question: Are the galaxies with supermassive black holes detected with Fermi low-powered & nearby or powerful & distant?

Findings:

- Developed a new machine-learning method using the Fermi data on blazars to categorize them.
- Working from the known blazars (supermassive black holes with jets), developed probabilities for any source to be either a low-power nearby source or a powerful distant Quasar, finding a way to separate the 2 classes in over 85% of the cases.
- Follow-up studies taking optical spectra of some sources have already confirmed that the new classification is useful.

Impact: New method can be used to guide observations at other wavelengths and provide targets for other telescopes of active galaxies.

Why it matters: Distinguishing between nearby/low-powered and distant/powerful supermassive black holes in galaxies helps us learn about the overall nature of galaxy evolution.