SESSION O-2K

COSMIC PERSPECTIVES

Session Moderator: Jessica Werk, Astronomy
MGH 251
1:30 PM to 3:00 PM

* Note: Titles in order of presentation.

Understanding the Characteristics and Variability of the Most Extreme Black Hole Outflows
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Mentor: Paola Rodriguez Hidalgo, Physical Sciences Division, STEM

Active galactic nuclei (AGN) found at the center of galaxies are a compact region of space that produce significantly higher than normal luminosity. AGN are powered by the accretion of matter into a supermassive black hole and sometimes present winds called outflows. Whether outflows affect the evolution of their host galaxies is still a topic of research. Outflows with speeds of more than 10% the speed of light, called Extremely high-velocity outflows (EHVOs), have not been thoroughly explored, and due to their large energies, they might play a large role in star formation. In the 16th data release of the Sloan Digital Sky Survey, 98 new quasars with EHVOs were identified. With this new sample, I will present the results of my findings on the following questions: (1) What does the average EHVO quasar look like? (2) Do these extreme outflows vary more or less than other previously explored outflows? (3) Can we detect these EHVOs at higher speeds? To answer the first question, I will present a composite of the 16th data release EHVO cases found. To analyze if they vary more often or less than other EHVOs, I will present the results of a longitudinal variability study on the 51 cases that were observed on multiple occasions in the EHVO sample. For the last question, I will show the results of applying code our team has created to remove the Lya lines from our spectra, so the intrinsic ions (such as NV, Lya, OVI) will be easier to analyze at higher speeds.