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Probing the Ionization and Kinematics of AGN Broad-Line Regions: An Advanced Cloudy Photoionization Study

Friday 14 March 2025 16:05 (1h 55m)

Active Galactic Nuclei (AGNs) are among the most luminous objects in the universe, powered by accretion onto supermassive black holes. The broad-line region (BLR), located within 5–30 light days of the black hole, produces strong emission lines that probe the ionization and kinematics of AGN gas. This project utilizes the Cloudy photoionization code to model BLR emission, incorporating new spectral energy distributions (SEDs) and additional ionic species beyond Hα, Hβ, C IV, and C III]. By varying the hydrogen density and ionizing photon flux, we explore how these parameters shape line intensities, equivalent widths, and the transmitted continuum. The results will help constrain BLR physical conditions in typical and atypical AGNs, providing new insights into AGN structure and evolution.

Field of study

Astrophysics

Supervisor

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Session Classification: Poster session: Enjoy the posters!