Contribution ID: **4** Type: **Invited**

Little Red Dots and the Rise of Faint, Obscured AGN at z>5

Tuesday 19 November 2024 09:00 (30 minutes)

One of the more surprising results from JWST has been the discovery of faint, broad-line AGN at z > 5 with luminosities that are 2-3 dex below those of bright quasars found from the ground. I will discuss recent AGN-related results from the CEERS Survey and what they tell us about the growth of SMBHs in the early universe. This includes the discovery of an actively accreting SMBH at z=8.67, which is one of the most distant AGN ever identified. The broad-line AGN identified in our NIRSpec observations are powered by black holes with masses of order 10^7 Msol, making them the least-massive BHs known in the early universe. We derive host stellar masses for each AGN, allowing us to place constraints on the BH-galaxy mass relationship in the lowest mass range yet probed in the early universe. Studies in this low-mass regime are key to constraining models of BH seeding and the early growth history of SMBHs. Finally, I will discuss the discovery of a large population of faint, obscured AGN at z>5 known as little red dots (LRDs). Roughly 80% of these sources exhibit broad emission lines in their spectra and our X-ray spectral analysis confirms that they are moderately obscured, with column densities of log (nH/cm^-2) > 23. The number density of these sources is 2-3 dex above that of bright quasars at z ~ 5-7 and 1 dex higher than current samples of X-ray AGN at z~5. I will discuss the implications of our findings on the fraction of BH growth that is heavily obscured in the early Universe.

Presenter: KOCEVSKI, Dale (Colby College)