

Cold Gas in Outflow: Evidence for Delayed Positive AGN Feedback

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Multiphase outflows driven by active galactic nuclei (AGN) have a profound impact on the evolution of their host galaxies. The effects of AGN feedback are especially prominent in the brightest cluster galaxies (BCGs) of cool-core clusters, where there is a concentration of gas in all phases, ranging from cold molecular gas to hot, $> 10^7$ K ionized plasma. In this talk I describe recent simulation efforts to understand the formation and evolution of the 10-kpc-scale H α -emitting filaments driven by AGN activities. Combined with observed star formation regions co-spatial with the filaments, this feedback mechanism can directly contribute to the growth of the central galaxy, albeit delayed by the characteristic radiative cooling timescale, ~ 10 Myr, of the outflowing plasma.

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