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The origin of cold gas in giant ellipticals and its role in fueling AGN feedback

Tuesday 12 August 2014 09:00 (25 minutes)

I will present a multi-wavelength study of the nature and origin of the multi-phase medium in giant ellipticals at the centers of low mass groups of galaxies. All systems with extended Halpha emission in our sample contain significant amounts of cold gas, which is co-spatial with the line emitting nebulae and the lowest entropy X-ray emitting plasma. I will show that while the hot atmospheres of the cold-gas-poor galaxies are thermally stable outside of their innermost cores, the atmospheres of the cold-gas-rich systems are prone to cooling instabilities. This indicates that cold gas in giant ellipticals is produced chiefly by cooling from the hot phase. I will also show that cooling instabilities may develop more easily in rotating systems and discuss the role of cold gas in AGN feedback.

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