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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 H α 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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