## Galaxy Evolution in X-Ray selected clusters and groups in Dark Energy Survey Data

Tuesday, 9 June 2015 09:30 (15 minutes)

Galaxy clusters and groups contain enormous amount of baryonic matter and dark matter, leaving prints across the electro-magnetic spectrum. Using optical imaging data from Dark Energy Survey, we have confirmed ~ 200 clusters and groups discovered with XMM-Newton archival data. In turn, this X-ray selected sample provides a well-understood data set for studying their optical content with Dark Energy Survey data. A subsample of the confirmed clusters and groups have been used to study the evolution of central galaxies. The study supports previous speculation that central galaxies grow slower than the prescription from simple semi-analytical modeling. We also show that intra-cluster light may play a greater role than previously assumed.

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Yes

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No

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Session Classification: Session 5 - Astrophysics and the Dark Sector