

University of Notre Dame
College of Science
Department of Physics

ASTROPHYSICS SEMINAR

The Universe's Largest Galaxies

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The largest galaxies in the universe are generally found at the centers of massive galaxy clusters. Many of these galaxies ought to be forming enormous numbers of stars, based on the cooling time of the hot gas that surrounds them, but they are not. Feedback from supermassive black holes is thought to be a big part of the solution to this puzzle, but it's not yet clear how that feedback loop works.

I will present results from a large Chandra archival study of cluster cores showing that star formation and AGN behavior in these enormous galaxies is closely linked with the properties of the intracluster medium. The results of this survey suggest that star formation at the centers of galaxy clusters is regulated partially by thermal conduction. If conduction cannot prevent the intracluster medium from developing multiphase structure, then star formation proceeds in the central galaxy, but at a rate reduced by simultaneous feedback from the central black hole.

