

BLACK HOLES IN DENSE STAR CLUSTERS
Aspen Center for Physics
2015 Aspen Winter Conference January 17–22, 2015

POSTER TITLE: Nucleation Fraction in the Field versus Cluster Environment

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A large percentage (as high as 80%) of low-mass galaxies have been found to host a massive nuclear star cluster (NSC). At the same time, while all massive galaxies are thought to harbor nuclear supermassive black holes (SMBHs), observational evidence for SMBHs is slim at the low end of the mass function. We explore the environmental dependence of the nucleation fraction by comparing two homogeneous samples of nearby field versus cluster early-type galaxies with uniform *Hubble Space Telescope* (HST) coverage. Existing *Chandra X-ray Telescope* data for both samples yield complementary information on low-level accretion onto nuclear SMBHs. Using Advanced Camera for Surveys (ACS) imaging data, we identify and characterize NSCs in the field targets, and find the nucleation fraction for field early-type galaxies to be consistent with the measured nucleation fraction for the Virgo Cluster (as found by the ACS Virgo Cluster Survey). Couple with the *Chandra* result that SMBH activity is higher for the field, our findings indicate that, since the last epoch of star formation, the funneling of gas to the nuclear regions has been inhibited more effectively for Virgo galaxies, arguably via ram pressure stripping.