

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

TITLE: Studying the origin of the Milky Way nuclear star cluster one star at a time

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Due to its proximity, the Milky Way nuclear star cluster provides us with a wealth of data not available in other galactic nuclei. In particular, we can observe the properties of individual stars. These properties include the position in two dimension and the velocity in three dimensions. With the rapid advances integral field and multi-object spectroscopy, we can also derive the physical properties of individual stars, such as the effective temperature, abundances, and surface gravity. I will discuss how these measurements have been used to derive physical properties of the cluster through dynamical models and luminosity functions. While these analyses have been very successful at helping us understand the star cluster, there is still enormous untapped potential in these data sets. I will discuss new work on the physical properties of the stars and how they will help us understand the origin and evolution of the nuclear star cluster.