
SEMINARI

Departament d'Astronomia i Astrofísica
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Stellar density and kinematics in the central parsec of the Galaxy

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Resum

The center of the Milky Way is a unique laboratory to study the structure and dynamics of a dense stellar cluster surrounding a massive black hole. At the Galactic center, we find the combination of nuclear cluster plus central black hole that is typical for spiral galaxies. While we can only study the integrated light in the case of the barely resolved extragalactic nuclear star clusters, the Milky Way is currently the only case, in which the structure of the cluster can be analyzed in

detail, i.e. both stellar densities and dynamics can be probed directly, via measurements on individual stars. In this talk we will focus on recent research on the Milky Way nuclear star cluster. Recent measurement of stellar dynamics out to a projected distance of 1 pc from the black hole have lead to the first direct measurement of the enclosed extended, i.e. non-black hole, mass in the central parsec. We have also identified the reason why the black hole mass was underestimated by a factor of ~ 2 before orbital measurements became available. Perhaps one of the greatest current enigmas is the absence of a stellar cusp around the black hole. While a cusp is a solid prediction from theory, recent observations confirm that it is absent, at least in the stellar population that can be analyzed with current instrumentation. We will discuss the currently suggested explanations for this finding.
