

ABSTRACT ONLY - ORAL

THE QUEST FOR THE LARGEST DEPLETED GALAXY CORE: SUPERMASSIVE BLACK HOLE BINARIES AND STALLED IN-FALLING SATELLITES

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Many luminous Early Type Galaxies (ETGs; $M_B < -20.5$ mag) are characterized by depleted stellar cores, i.e. marked flattenings of the inner light distribution relative to the outer profile of the ETG spheroid. The structural characteristics of cores clearly depend on the formation history of the ETG, and in the last decades they have been shown to correlate with the mass of the central Super-Massive Black Hole (SMBH). This addresses to a link between the formation of the SMBH and that of the core. It has been suggested that Black Hole (BH) binaries, established during dry (i.e. gas-poor) mergers which shaped the ETG, kick stars out of the galaxian nucleus via three-body interaction, before coalescing into the central SMBH. In this talk, this "binary BH scouring scenario" is probed at its extremes by investigating the two galaxies reported to have the largest partially-depleted cores found to date: 2MASX J09194427+5622012 and 2MASX J17222717+3207571 (the brightest galaxy in Abell 2261). For 2MASX J17222717+3207571, given the presence of multiple nuclei located (in projection) within the core radius of this galaxy, we explored and found support for the alternative "stalled in-falling perturber" core-formation scenario, in which this galaxy's core could have been excavated by the action of an infalling massive perturber.

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