

BLACK HOLES IN DENSE STAR CLUSTERS
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POSTER TITLE: The Mass Spectrum of Compact Remnants from the PARSEC Stellar Evolution Tracks

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The debate about the demographics of black holes (BHs) in star clusters (SCs) has always been controversial. The dearth of observations of BH X-Ray binaries in globular clusters (GCs) suggested that most BHs were ejected from their birthplace. Nevertheless, the recent discovery of several BH candidates in GCs deeply changed our perspective. On the theoretical side, the formation and dynamical evolution of BHs in GCs and in younger SCs is still poorly understood. To shed light on the enigma of BH formation and evolution in SCs, it is essential to perform high-accuracy N-Body simulations of stellar systems, and to link them with new stellar evolution recipes. In particular, our knowledge of stellar evolution and stellar winds at low metallicity was revolutionized in the last ten years. In this poster, I present a new public software environment that couples N-Body dynamics, advanced models of stellar evolution (from the Padova stellar evolution group) and new recipes for remnant formation. I used this code to investigate the formation of massive BHs ($\sim 30M_{\odot}$) in metal-poor SCs ($<0.3Z_{\odot}$).