BLACK HOLES IN DENSE STAR CLUSTERS
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POSTER TITLE: Black Hole Binaries in Galactic Nuclei and Gravitational Wave Sources

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To investigate gravitational wave sources in galactic nuclei, we have generated quasi-equilibrium N-body realizations for nuclear star clusters by considering external potentials from a super-massive black hole located at the center and a surrounding bulge. Our models represent well the density and velocity structures revealed from numerous previous theories and observations. Then, we collected the orbital information of close encounters in our simulations, in order to find candidates which have chance to be binaries by gravitational radiative capture and finally suffer compact binary coalescences. As the result, we can determine the merger rate for our models and the detection rate for advanced LIGO. We also have implemented post Newtonian perturbing force to the two body motion in order to study the orbital evolution of compact binaries.