

**BLACK HOLES IN DENSE STAR CLUSTERS**  
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POSTER TITLE: Relics of Galaxy Merging: Observational Predictions for a Wandering Massive Black Hole and Accompanying Star Cluster in the M31 Halo

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Galaxies and massive black holes (BHs) are presumed to grow via galactic merging events and subsequent BH coalescence. As a case study, we investigate the merging event between the Andromeda galaxy (M31) and a satellite galaxy (Miki et al. 2014). We compute the expected observational appearance of the massive BH and stars around it that were at the center of the satellite galaxy prior to the merger, and are currently wandering in the M31 halo (Kawaguchi et al. 2014). We demonstrate that a radiatively inefficient accretion flow with a bolometric luminosity of a few tens of solar luminosities develops when Hoyle-Lyttleton accretion onto the BH is assumed. We compute the associated broadband spectrum and show that the radio band (observable with EVLA, ALMA and SKA) is the best frequency range to detect the emission. We also evaluate the mass and the luminosity of the stars bound by the wandering BH and find that such a star cluster is sufficiently luminous that it could correspond to one of the star clusters found by the PAndAS survey. The discovery of a relic massive BH wandering in a galactic halo will provide a direct means to investigate in detail the coevolution of galaxies and BHs. It also means a new population of BHs (off-center massive BHs), and offers targets for clean BH imaging that avoids strong interstellar scattering in the center of galaxies.