

# Dark matter fluxes from Accreting Black Holes and Direct Detections

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We discuss the possibility that accreting black hole systems could be sources for dark matter flux through several different mechanisms. We firstly discuss two types of systems: coronal thermal plasmas around supermassive black holes in active galactic nuclei (AGNs), and accretion disks of stellar-mass X-ray black hole binaries (BHBs). We explore how these black hole systems may produce keV light dark matter fluxes and find that the dark fluxes from those sources might be too weak to account for the current XENON1T excess. On the other hand, black holes can be good accelerators to accrete and boost heavy dark matter particles. If considering collisions or dark electromagnetism, those particles could then escape and reach the benchmark speed of  $0.1c$  at the detector. We also extend the black hole mass region to primordial black holes (PBHs) and discuss the possibility of contributing to keV light dark flux via superradiance of PBHs.

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