

Abstract Submitted  
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**Dark matter distribution in the Schwarzschild geometry**<sup>1</sup> LALEH SADEGHIAN, FERANCESC FERRER, CLIFFORD M. WILL, Washington University in St. Louis — The cold dark matter at the galactic centre is redistributed by the presence of the central massive black hole. We consider a range of initial distribution functions for the dark matter and use an adiabatic assumption to “grow” the black hole. Unlike the non-relativistic approach of Gondolo and Silk [1], we use a fully general relativistic treatment of the black hole’s Schwarzschild geometry. We find significant differences in the final dark matter distribution close to the black hole. We discuss how this could be generalized to the rotating black hole case.

[1] P. Gondolo, J. Silk, Phys. Rev. Lett. 83, 1719-1722 (1999)

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