

Abstract Submitted  
for the APR18 Meeting of  
The American Physical Society

**Adiabatic Dark Matter Spikes Around Kerr Black Holes** AUGUSTO MEDEIROS DA ROSA, FRANCESC FERRER, Washington Univ, CLIFFORD WILL, University of Florida, Gainesville — The growth of a massive black hole will steepen the cold dark matter density at the center of a galaxy into a dense spike, enhancing the prospects for indirect detection. We study the impact of black hole spin on the density profile using the exact Kerr geometry of the black hole in a fully relativistic adiabatic growth framework. We find that, despite the transfer of angular momentum from the hole to the halo, rotation increases significantly the dark matter density close to the black hole. The gravitational effects are still dominated by the black hole within its influence radius, but the larger dark matter annihilation fluxes might be relevant for indirect detection estimates

Augusto Medeiros da Rosa  
Washington Univ

Date submitted: 14 Jan 2018

Electronic form version 1.4