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A Generalized Secondary Infall Model PHILLIP ZUKIN, EDMUND BERTSCHINGER, MIT — The inner slope of a dark matter halo's density profile affects our understanding of galaxy formation and evolution and has implications for dark matter indirect detection. While simulations seem to predict a cuspy steep inner slope, observations suggest flat core-like profiles. This discrepancy is known as the Cusp Core problem. We attempt to shed light on the problem, through analytic means, by generalizing the self-similar secondary infall model to include angular momentum. In our model, each halo is represented by a two parameter family of solutions. One parameter describes the initial mass perturbation and the other defines how a given shell is torqued through evolution. We show how the inner slope varies with parameters.

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