

Abstract Submitted
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Light Scalar Dark Matter and the Lyman- α Forest¹ MIGUEL CORREA, GRANT J. MATHEWS, LARA A. PHILLIPS, IN-SAENG SUH, University of Notre Dame, JARED COUGHLIN, University of Illinois at Urbana-Champaign — The identity of dark matter remains unknown. A recent very promising dark matter candidate consists of ultralight or fuzzy dark matter (FDM). Simulations employing this form of dark matter seem capable of matching most observations. In particular, FDMs large 1 kpc DeBroglie wavelength produces quantum mechanical effects on galactic scales, alleviating several known computational discrepancies in the standard Λ CDM cosmology. However, despite the successes of the model, spectral signatures of the Lyman- α forest still conflict with FDMs predictions. We will report on numerical simulations of large scale structure and the intergalactic medium using a modified version of the publicly available SPH GADGET code, which we use to simulate the Lyman- α forest. We will discuss various means to bring the FDM hypothesis into agreement with the observations.

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