

Abstract Submitted
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A Josephson Parametric Amplifier (JPA) for the ADMX-HF Experiment¹ MEHMET ALI ANIL, U. of Colorado, ADMX COLLABORATION, ADMX-HF COLLABORATION — ADMX-HF is a second experimental ADMX platform being built up at Yale University, specifically designed as a test-bed for new concepts and data-taking at higher frequencies, and thus masses, in the search for dark-matter axions. In its first generation ADMX-HF will operate with a microwave cavity tunable between 4 and 8 GHz. In this frequency band, Josephson Parametric Amplifiers (JPA) recently developed at the University of Colorado provide quantum-limited microwave amplification, critical for detecting the weak signal associated with axion to photon conversion. These amplifiers are particularly well suited to ADMX-HF because they have a bandwidth well matched to the width of the cavity resonance and this band is tunable with magnetic field over the 4 to 8 GHz band of the axion cavity. For these reasons, the Colorado amplifiers will be deployed in ADMX-HF. In this talk, we will describe the operation of these amplifiers and the technical challenges associated with deploying them in ADMX-HF.

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