

Abstract Submitted
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Progress towards a broadband traveling wave Josephson parametric amplifier D.H. SLICHTER, Quantum Nanoelectronics Lab, UC Berkeley, LAFE SPIETZ, NIST Boulder, O. NAAMAN, Quantum Nanoelectronics Lab, UC Berkeley, J. AUMENTADO, NIST Boulder, I. SIDDIQI, Quantum Nanoelectronics Lab, UC Berkeley — Most Josephson parametric amplifiers are based on a resonant circuit architecture with associated bandwidth limitations. We examine the use of a ‘Josephson nonlinear fiber’ – a transmission line periodically loaded with Josephson junctions – as an inherently broadband traveling wave parametric amplifier. We report on the device design, calculations of gain and bandwidth from a simple model, and preliminary measurement results. We acknowledge the ONR and the Hertz Foundation for financial support.

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