

Abstract Submitted
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Microstrip SQUID amplifiers at gigahertz frequencies¹ M.P. DE-FEO, P. BHUPATHI, M. WARE, B.L.T. PLOURDE, Syracuse University — SQUID amplifiers based on the microstrip resonance formed between the input coil and SQUID washer have demonstrated substantial gain and low noise at frequencies of several hundred MHz. Operation at higher frequencies requires shorter input coils and the corresponding reduced mutual inductance must be compensated with an increased transfer function in order to avoid loss of gain. We have fabricated microstrip SQUID amplifiers using low capacitance Al-AlO_x-Al submicron junctions and large resistive shunts to increase the transfer function while keeping the SQUID non-hysteretic. These devices have demonstrated gains beyond 20dB at frequencies in the gigahertz range. Gain and noise measurements as well as applications of these devices in the field of quantum information science will be discussed.

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