

Abstract Submitted  
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**Microwave amplifier based on an inline dc SQUID** DAVID HOVER,  
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dc SQUID can be used as a sensitive, low-noise microwave amplifier if the signal to  
be amplified is suitably coupled to the SQUID. We have designed and fabricated  
microwave amplifiers based on inline dc SQUIDs, where the SQUID loop is formed  
from a thin ( $\sim 100$  nm) dielectric layer separating the base and counterelectrode  
wiring traces. The SQUID is embedded in a microstrip transmission line resonator  
at a current anti-node, and signal current is injected directly into the SQUID loop.  
With this design we have achieved gain greater than 20 dB at a frequency of 8.5  
GHz. We provide a theoretical analysis of amplifier noise temperature, bandwidth,  
and gain, and describe measurements of amplifier noise temperature. We discuss  
application of these devices to the readout of superconducting quantum circuits.

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