

Abstract Submitted  
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**Johnson noise measurements of a 3.1 k $\Omega$  resistor at mK temperatures using a SQUID-based circuit**<sup>1</sup> VIDHI SHINGLA, ETHAN KLEINBAUM<sup>2</sup>, GÁBOR CSÁTHY, Purdue University — The measurement of Johnson noise of resistors of the order of a k $\Omega$  at mK temperatures is a difficult task. Such a measurement is not possible with room temperature amplifiers since the typical amplifier noise exceeds the Johnson noise. Such measurements are, however, possible with circuits based on cooled High Electron Mobility Transistors (HEMTs). We present an alternative circuit for such measurements which is based on a dc SQUID. We demonstrate that our circuit does not contribute appreciable noise to the Johnson noise of a 3.1 k $\Omega$  resistor down to 16 mK, enabling therefore Johnson noise thermometry.

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