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**SESSION 12: Superconductor Applications****Paper No. 12-4 Thursday Afternoon 11:30 PM**

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***Solvay Cryocooler Cryostat for Quantum Material Characterization***

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ARS has developed a novel cryostat specifically for Quantum Material Property Testing. With the promise of Quantum Computing there is a great interest in testing; optical, electrical and magnetic properties of materials. The regions of interest such as quantum dots are in the atomic scale, therefore vibrations, drift and temperature stability become critical performance specifications of this cryostat. The ARS-SOLVAY cryocooler the engine to power the cryogenics of this system, has a unique drive mechanism which has very low vibrations in the temperature range of 2.8K to 4.2K. this feature coupled with additional proprietary vibration isolation techniques allows sub-picometer vibrations at the sample for near field microscopy such as AFM and STM. This paper describes the experimentation and results of the AFM test performed at JILA, Research Institute at Boulder, CO.