Abstract Submitted
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The ADMX Site and Dilution Refrigerator[1] JAMES SLOAN, Univ of Washington, ADMX COLLABORATION — The ADMX experiment searches for axions by looking for their resonant conversion to detectable photons with a frequency that directly corresponds to the axion mass (a currently unknown value). Fundamentally, the RF photon detection is relatively straightforward; the exceptional technical challenge of ADMX is achieving the sensitivity required to discern the extremely weak ($\sim 10^{-22}$W) photon signal above the system noise. Greater sensitivity is achieved by either lowering the physical and amplifier noise or by integrating for longer time over a given frequency range. Noise temperatures approaching the quantum limit are achieved by operating quantum electronics, SQUIDs and JPAs, at very low physical temperatures. In the past ADMX has achieved $\sim$1.5K physical temperatures by operating with pumped ^{4}He. The addition of a ^{3}He/^{4}He dilution refrigerator into ADMX will lower the physical temperatures to $\sim$100mK, dramatically increasing the scan rate and sensitivity. I will discuss the site and hardware modifications to ADMX to accommodate the dilution refrigerator and will report on the commissioning operations of the dilution refrigerator.

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James Sloan
Univ of Washington

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