Abstract Submitted
for the TSS15 Meeting of
The American Physical Society

Radon Plateout Studies to illuminate Background Levels in Dark Matter Experiments MAYISHA NAKIB, MATTHEW BRUEMMER, ROBERT CALKINS, JODI COOLEY, STEPHEN SEKULA, Southern Methodist University — The decay of radon in the air leads to long lived radioactive daughter products that produce significant backgrounds in dark matter and double beta decay experiments. These backgrounds can mimic the desired signals. The Laboratory for Ultra-Pure Material Isotope and Neutron Assessment (LUMINA) at Southern Methodist University uses one of the first five UltraLo 1800 production model alpha counters made by XIA LLC. The instrument has an electron drift chamber with a configurable 707 or 1800 cm^2 inner counting region. The SMU team operating this device uses it to study activity rates from radon daughters that have plated-out onto material surfaces that are often used in the construction of low radioactivity experiments. We present results from studies involving four acrylic squares obtained from the MiniCLEAN direct dark matter search that have been exposed to a ^{222}Rn source. We monitored the ^{210}Pb plate-out over time to evaluate the effectiveness of various cleaning methods designed to remove the Rn daughters. I will also describe on-going studies involving radon plate-out onto copper in nitrogen purged environments.

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Date submitted: 07 Feb 2015 Electronic form version 1.4