

Abstract Submitted  
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**Construction, Testing, and Analysis of Radon Mitigation System** DAN JARDIN, RICHARD SCHNEE<sup>1</sup>, Syracuse University, CDMS COLLABORATION<sup>2</sup> — The search for dark matter or other rare events such as neutrinoless double-beta decay is difficult in the presence of background radiation such as the alpha and beta emissions from the  $^{222}\text{Rn}$  decay chain. In order to reduce the radioactive background from Rn-daughters, an ultra-low radon clean room is being built at Syracuse University. A vacuum-swing adsorption system is used to mitigate the radon. Air flows through one of two tanks filled with charcoal that the radon adsorbs to, allowing the filtered air to pass into the clean room. Computer-controlled valves direct the airflow so that one tank filters the air while the other tank is purged of radon by circulating a small fraction of the cleaned airflow back through the tank at low pressure. The durations, pressures, and flow rates of each stage of building pressure, filtering, releasing pressure, and purging in the tanks are optimized in order to maximize the reduction of radon from the air.

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