

# Radon Mitigation for the SuperCDMS SNOLAB Dark Matter Experiment

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## Content

A potential background for the SuperCDMS SNOLAB dark matter experiment is from radon daughters that have plated out onto detector surfaces. To reach background requirements, understanding plate-out rates during detector fabrication as well as mitigating radon in surrounding air is critical. A radon mitigated cleanroom planned at SNOLAB builds upon a system commissioned at the South Dakota School of Mines & Technology (SD Mines). The ultra-low radon cleanroom at SD Mines has air supplied by an optimized vacuum-swing-adsorption radon mitigation system that has achieved  $> 1000\times$  reduction for a cleanroom activity consistent with zero and  $< 0.067 \text{ Bq/m}^3$  at 90% confidence. Our simulation of this system, validated against calibration data, provides opportunity for increased understanding and optimization for this and future systems.

## Summary

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