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SuperCDMS & Radon

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Dark matter constitutes over 80% of the matter in the Universe, but its composition remains one of the most profound mysteries in modern science. The Super Cryogenic Dark Matter Search at SNOLAB will use germanium and silicon ultra-high-resolution detectors to search for small energy depositions from galactic dark matter particles with masses below 10× the mass of the proton. Decay of radon daughters on or near the detector surfaces can lead to background events capable of masking the (small) anticipated dark matter interaction rate. To address this background concern, we have conducted a test measurement campaign to validate the cleanliness of critical detector fabrication processes for the surfaces of the detector crystals and their copper housings. I will describe these measurements and discuss the results, including implications for the expected dark matter sensitivity. I will also discuss the overall program for control of radon-related backgrounds in SuperCDMS SNOLAB.

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