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## Improving radon assay using activated charcoal

Friday 18 August 2023 10:00 (15 minutes)

Radon is a problematic radioactive inert gas to the highly sensitive detectors at SNOLAB. In attempts to improve our Radon trapping efficiency from samples of gases, a charcoal based trap was developed at SNOLAB. Radon binds to charcoal via the Van der Waals forces, a process that is made more prominent at cryogenic temperatures. Extraction and the determination of the amount of trapped Radon from a known quantity of gas constitutes an assay. Using a calibration source of known Radon emanation allows us to understand the trapping efficiency of our charcoal based trap.

After having introduced the apparatus and the procedure to conduct assays, I will mainly present the progress we have made in (1) understanding the background from our charcoal trap and the surface assay board, (2) the determination of the amount of Radon emanation from our calibration source, (3) identification of a source of virtual leak in our assay system, and (4) the plan and goals for the next four months. I will also briefly make mention of some other activities I have been involved with at SNOLAB, for example the underground assays on the SNO+ UI gas.

## **Topics - Please choose one:**

Experiment / Theory

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