



Canadian Association  
of Physicists

Association canadienne  
des physiciens et physiciennes

Contribution ID: 3636

Type: Oral (Non-Student) / Orale (non-étudiant(e))

## Ex-situ measurement of particulate cleaning for ultra-low background experiments

*Monday 19 June 2023 11:00 (15 minutes)*

Radioactivity in particulates contributes significantly to the background in ultra-low background experiments. The alpha generated from dust provides a degraded energy signal on the detector that mimics low-energy nuclear recoil events, which is background to rare event particle detectors, especially dark matter search experiments. A particulate cleaning station, which includes controlled gas flow on the material surface, a flowmeter, an optical microscope, and a profilometer to scan the surface, has been developed and used to study the cleaning efficiency of dust with various speeds of gas. In this talk, the hardware of the system, the analysis technique, and the cleaning efficiency of different materials and sizes of dust with various gas speeds will be presented.

### Keyword-1

Dark matter

### Keyword-2

Radioactivity

### Keyword-3

Particle detector

**Author:** Dr ADHIKARI, Pushparaj (Carleton University)

**Presenter:** Dr ADHIKARI, Pushparaj (Carleton University)

**Session Classification:** (PPD/DNP) M1-1 Neutrinoless Double Beta Decay | Désintégration double bêta sans neutrino (PPD/DPN)

**Track Classification:** Technical Sessions / Sessions techniques: Particle Physics / Physique des particules (PPD)