Canadian Association of Physicists
Association canadienne des physiciens et physiciennes

Contribution ID: **3811** Type: **Oral Competition (Graduate Student) / Compétition orale (Étudiant(e) du 2e ou 3e cycle)**

# (G*) Machine Learning Applications for NEWS-G

*Wednesday 21 June 2023 11:15 (15 minutes)*

In this talk I will present updated results regarding the application of machine learning techniques for noise removal and physics-variable prediction on signals from spherical proportional counters (SPCs) with the NEWS-G experiment. In SPC detectors, a primary ionization, created by a particle interacting with the gas, drifts towards a central anode. When ions approach the anode, the electric field becomes strong enough to trigger secondary ionizations, resulting in an amplified detector signal. Evaluation of these techniques include tests on simulated pulses with added noise and quantifying the impact of noise-removal and single-output prediction on physics goals such as primary ion counting and energy resolution. Successful implementation of this technique will reduce errors on event measurements (energy, drift time, etc.) and lower the analysis threshold, thereby enabling the experiment to search for lower mass dark matter events.

## Keyword-1

Dark Matter

## Keyword-2

Machine Learning

## Keyword-3

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**Session Classification:** (PPD) W1-9 DM / Neutrino 2 | DM / Neutrino 2 (PPD)

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