



Canadian Association
of Physicists

Association canadienne
des physiciens et physiciennes

Contribution ID: 40

Type: **Invited Speaker / Conférencier(ère) invité(e)**

Nuclear ionization yield measurements in Neon gas using spherical proportional counter for the NEWS-G experiments

Monday, 8 June 2020 16:00 (15 minutes)

NEWS-G (New Experiments With Spheres-Gas) is a rare event search experiment using Spherical Proportional Counters (SPCs). Primarily designed for the direct detection of dark matter, this technology also has appealing features for Coherent Neutrino-Nucleus Scattering ($\text{CE}\nu\text{NS}$) studies using nuclear power plants as a neutrino source.

For both applications, an important property of the gas to characterize is the ionization yield, or quenching factor, defined as the ratio of the measured energy induced by a nuclear recoil and an electronic recoil of the same energy. Quenching factor measurements in Neon based gas mixtures are being performed at TUNL (Triangle Universities Nuclear Laboratory) using a neutron beam and an array of backing detectors. We will present the set-up and techniques for quenching factor measurements and the most recent results obtained.

Primary author: VIDAL, Marie (Queen's University)

Presenter: VIDAL, Marie (Queen's University)

Session Classification: PPD-2 : Dark Matter | Matière sombre

Track Classification: Particle Physics / Physique des particules (PPD)