



## Precision measurement of nuclear recoil ionization yields for low mass wimp searches

**Main author:**

SAAB Tarek

**Co-authors:**

Figueroa-Feliciano Enectali, Northwestern University

Saab Tarek, University of Florida

Understanding the response of dark matter detectors at the lowest recoil energies is important for correctly interpreting data from current experiments or predicting the sensitivity of future experiments to low mass WIMPs. In particular, the ionization yield is essential for determining the correct recoil energy of candidate nuclear recoil events, however, few measurements in cryogenic crystals exist below 1~keV. Using the voltage-assisted calorimetric ionization detection technique with a mono-energetic neutron source, we show that it is possible to determine the ionization yield in cryogenic crystals down to an energy to 100 eV. This measurement will also determine the statistics of ionization production at these low energies.