

Columnar recombination and directional nucleus reconstruction

Tuesday 6 February 2018 13:15 (15 minutes)

Columnar recombination is one of the most recent and intriguing ideas to overcome the neutrino floor in future dark matter experiments, performing neutrino physics through the coherent-interaction channel, or advance in fast neutron detection, with pointing accuracy.

At the moment, liquid-based detectors have been unsuccessful at finding any signature related to it, but the phenomenon is ubiquitous in gas phase and known since a century.

Despite its presence in nuclear reactions in TPCs, columnar recombination has received little-to-none attention in the context of low-energy (sub-100keV) recoiling nuclei, and nuclei in gas, more in general, except for some initial work on alpha particles (MeV-range).

We detail ongoing efforts at measuring and modelling the effect, and that are currently undergoing at IGFAE.

Author: GONZALEZ DIAZ, Diego (Universidade de Santiago de Compostela (ES))

Presenter: GONZALEZ DIAZ, Diego (Universidade de Santiago de Compostela (ES))

Session Classification: Dark matter studies in RENATA groups