Contribution ID: **514** Type: **Parallel session talk**

Electroluminescence measurements in He, CF4 and iso-butane mixtures for directional dark matter searches with the CYGNO Time Projection Chamber

Wednesday 26 May 2021 08:24 (18 minutes)

CYGNO (a CYGNus TPC with Optical readout) fits into the wider CYGNUS proto-collaboration, developing a ton scale Galactic Nuclear Recoil Observatory with directional sensitivity for Dark Matter searches below the Neutrino Floor and Solar Neutrino Physics. Located at Gran Sasso National Laboratory (Italy), CYGNO will operate a TPC readout by a Micro Pattern Gaseous Detector ensuring charge multiplication and electroluminescence (EL) production. The visible component of the EL is collected by a sub-mm position resolution scientific camera, enabling particle identification and track reconstruction capability, crucial to measure nuclear recoils direction.
In this work the EL produced in a Gas Electron Multiplier is read by a Large Area Avalanche Photodiode. EL yield, charge gain and energy resolution in He, CF4 and iso-butane mixtures are measured with low energy X-rays. The inclusion of iso-butane, with its high H content, will allow to reduce the observable WIMP mass threshold.

TIPP2020 abstract resubmission?

No, this is an entirely new submission.

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Authors: Dr AMARO, Fernando (LIBPhys - Coimbra University); CYGNO COLLABORATION

Presenter: Dr AMARO, Fernando (LIBPhys - Coimbra University)

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