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The CYGNUS Directional Dark Matter Experiment and Neutrino-Nucleus Scattering

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CYGNUS is a coordinated effort by dark matter direct search groups interested in directional signals, working towards design and build of a global network of directional WIMP experiments able to probe below the neutrino floor. As such, sensitivity is required to detection and measurement of Solar neutrino-nucleus scattering with directional information. The proposed technology is that of low pressure gas time projection chambers. Recent design work on CYGNUS to achieve this will be reviewed including new results on the essential issue of electron background discrimination and intrinsic backgrounds. The potential use of the UK's 1.5 GW Hartlepool reactor for a test run is outlined as well as other efforts in CYGNUS considering the potential for neutrino-nucleus scattering at low energies.

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