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DARWIN

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The primary goal of the proposed DARWIN observatory is to explore the entire experimentally accessible WIMP dark matter parameter space down to irreducible neutrino backgrounds. With its 40t active liquid xenon target, low-energy threshold, and ultra-low background conditions, DARWIN will have unprecedented sensitivity to spin-independent WIMP-nucleon cross-sections down to $\sim 10^{-49} \text{ cm}^2$ at WIMP masses of 30 GeV/c². DARWIN will also be sensitive to other rare interactions, such as the neutrinoless double beta decay of ¹³⁶Xe, and will allow measuring low-energy solar neutrinos with great precision via elastic neutrino-electron-scattering. We report on the challenging DARWIN detector concept, its science channels, and the ongoing R&D efforts.

Summary

Presenter: BAUR, Daniel (Universität Freiburg)

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