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Direct dark matter searches: recent results and prospects

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The nature of Dark Matter is one of modern physics' most intriguing mysteries. Direct search experiments aim to reveal its secret by studying its potential interactions with "visible" matter. This talk will overview the experimental landscape, focusing on promising Dark Matter candidates investigated in labs. In line with the theme of "physics in collision," it will highlight the search for Weakly Interacting Massive Particles (WIMPs) and other particles that might collide with detector media. I will present recent findings from noble gas time projection chambers, with a focus on the XENONnT experiment, and briefly discuss future detectors and their potential to advance our understanding.

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