Whispers from the Dark Universe - Particles & Fields in the Gravitational Wave Era



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The dawn of nuclear supremacy for dark matter searches —implications of the laser excitation of Th-229

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The isomer transition of Th-229 has recently been excited for the first time by a VUV laser and subsequently the transition energy has been determined with a relative error of $O(10^{-6})$ (by now even $O(10^{-10})$). Due to its enhanced sensitivity to scalars coupling to the nuclear sector compared to other optical clocks, measurements of the lineshape will soon start probing uncharted parameter space as I will discuss. This is even before an optical clock based on this transition is realized.

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