

# 第 54 回 RESCEU コロキウム



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日 時: 2021 年 12 月 7 日(火) 15:00 ~16:00

場 所: オンライン (Zoom)

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## Direct Dark Matter Search with XENON

### Abstract

Direct dark matter searches using xenon dual-phase time projection chamber have shown a great potential to detect WIMPs (Weakly Interacting Massive Particles) via elastic scattering off the target nuclei. With steadily growing target masses the XENON experiment (most recently the XENON1T) set the most stringent limits on WIMP-nucleon interactions over a broad mass range (0.1 GeV to 10 TeV). Its ultra-low backgrounds and the tonne-year exposure also enabled searches for rare nuclear processes, the coherent elastic scattering of solar neutrinos and alternative dark matter candidates such as axion-like particle (ALP). Recently, an excess of low-energy electronic recoil events was observed, but its origin is still not yet determined. This will be explored with the next experiment XENONnT. It is aimed at improving the WIMP sensitivity by more than an order of magnitude beyond current limits with the 20 times longer exposure and 20% of XENON1T background level. In this seminar, I will highlight the recent XENON1T results and give an overview of XENONnT's construction, status and physics reach.

興味をお持ちの方の聴講を歓迎致します。