Dark matter and gravitational waves

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With non-perturbative lattice calculations we investigate the finite-temperature confinement transition of a composite dark matter model. We focus on the regime in which this early-universe transition is first order and would generate a stochastic background of gravitational waves. Future searches for stochastic gravitational waves will provide a new way to discover or constrain composite dark matter, in addition to direct-detection and collider experiments. As a first step to enabling this phenomenology, we determine how heavy the dark fermions need to be in order to produce a first-order stealth dark matter confinement transition.

Primary author: RINALDI, Enrico (RIKEN)

Co-authors: SCHAICH, D.; BROWER, R. C.; CUSHMAN, K.; FLEMING, G. T.; GASBARRO, A.; HASENFRATZ, A.; JIN, X. Y.; KRIBS, G. D.; NEIL, E. T.; OSBORN, J. C.; REBBI, C.; VRANAS, P.; WITZEL, O.

Presenter: RINALDI, Enrico (RIKEN)

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