

Copernicus Webinar and Colloquium Series



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Beyond the WIMP paradigm

Tuesday, April 12, 2022 3:00 PM (1h 20m)

Weakly-interacting massive particle (WIMP) has been the leading paradigm of dark matter for decades. Still, experimental searches for non-gravitational signatures of WIMPs have not found any positive evidence yet. It motivates us to think about new search strategies and novel dark matter models.

My talk consists of the two directions looking beyond WIMP. First, I will introduce an effective field theory of superfluid helium. Developing the effective field theory is the first step of a project to build a dark matter direct detection detector using superfluid helium to search for sub-GeV mass dark matter. Then, in the other part of my talk, I will outline a new paradigm, where dark matter is made up of a novel form of matter, called “gapped continuum”, rather than an ordinary particle.

Presenter: XUE, Wei (Florida U.)