

# Dark Matter in the Universe



**IRMP Colloquium & BEL Center Seminar**

## **Katherine Freese**

**University of Texas, Austin**

**Tuesday October 17, 16:00 - 17:00 via Zoom**

<https://agenda.irmp.ucl.ac.be/event/4082/>



The ordinary atoms that make up the known universe, from our bodies and the air we breathe to the planets and stars, constitute only 5% of all matter and energy in the cosmos. The remaining 95% is made up of a recipe of 25% dark matter and 70% dark energy. After discussing the evidence for the existence of dark matter in galaxies, I'll turn to leading candidates for the dark matter: Weakly Interacting Massive Particles (WIMPs), axions, sterile neutrinos, primordial black holes, and light dark matter. Neutrinos only constitute 1/2% of the content of the Universe, but much can be learned about their properties from cosmological data. There are multiple approaches to experimental searches for WIMPS: at the Large Hadron Collider at CERN; in underground laboratory experiments; with searches for annihilation products, and via upcoming searches with the James Webb Space Telescope for Dark Stars, early stars powered by WIMP annihilation. Current results are puzzling and the hints of detection will be tested soon. At the end of the talk I'll briefly turn to dark energy and its effect on the fate of the Universe.

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KU LEUVEN

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