



# Münchner Physik- Kolloquium

Winter  
2016/17

## Particle physics beyond colliders

**Prof. Dr. Asimina Arvanitaki**, *Perimeter Institute, Canada*

Monday, 9 January 2017, 17:15 h

Hörsaal H 030, Fakultät für Physik der LMU, Schellingstraße 4, München

When we think about Particle physics the first thing that comes to mind is colliders and high energies. Recently there have been several proposals of low-energy precision experiments that can also look for new particles, new forces, and the Dark Matter of the Universe in a way that is complementary to collider searches. In this talk, I propose two different experiments that search for a type of Dark Matter naturally arising in String Theory. In String Theory fundamental constants, such as the electron mass or charge, are determined by fields known as moduli. When these fields are the Dark Matter of our Universe, they cause the fundamental constants to oscillate with a frequency set by the Dark Matter mass. For frequencies smaller than 1 Hz atomic clocks with their unprecedented sensitivity can pick up these oscillations. For higher frequencies above 1 kHz, Dark Matter can excite acoustic modes in resonant mass detectors originally designed to detect gravitational radiation from astrophysical sources. Both techniques extend searches for this type of Dark Matter by several orders of magnitude in the near future.

## Student event: Meet the speaker

We invite you to a **student-only** discussion-round with Prof. Dr. Asimina Arvanitaki before his Munich Physics Colloquium talk.

*Be curious and feel free to ask any question.*

Monday, 9 January 2017, 16:00 h

Room HU123 (basement), Fakultät für Physik der LMU, Schellingstraße 4, München

