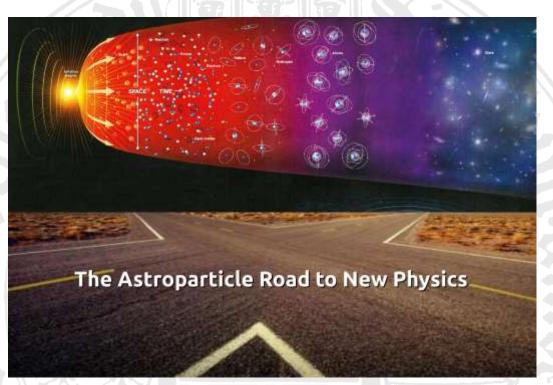


Fakultät für Mathematik und Physik Albert-Ludwigs-Universität Freiburg

## Sonderkolloquium

AM 23. JULI 2019 UM 12:00 UHR IM SEMINARRAUM, GUSTAV-MIE-GEBÄUDE



## The Astroparticle Physics Road to New Physics Dr. Julia Harz

## TECHNISCHE UNIVERSITÄT MÜNCHEN

The Standard Model of particle physics is able to describe the world around us with an astonishing precision. However the overabundance of particles over antiparticles, the existence of some non-luminous dark matter and the fact that the feebly interacting neutrinos have masses, suggest that there is new physics awaiting discovery.

In my talk, I will first give an overview of the current status of astroparticle physics. In this context, I will then present my research, which is guided by the aforementioned fundamental questions. I will show examples of how I devise new ways to probe possible extensions to the Standard Model with the help of current and future experiments, and how I develop accurate theoretical predictions for observables tied to new physics, demonstrating their impact for the interpretation of experimental results. Furthermore, I will survey the landscape of experiments that will be of importance in the coming years, and explain why I think it is timely to follow the astroparticle road to new physics. I will conclude by pointing out synergies and complementarities with the research being performed at the Albert-Ludwigs-University of Freiburg.