

15. Juni 2022

Einladung zum Physikalischen Kolloquium

24.06.2022 **Felix Kahlhöfer, TTP, Karlsruher Institut für Technologie**
**»Hunting dark matter with global fits of particle physics
and cosmology«**

Einführung: K. Melnikov

Abstract: The nature of dark matter, which constitutes the dominant form of matter in the universe, is among the central open problems of modern physics and a worldwide effort is being made to detect dark matter particles in the laboratory. The lack of convincing signals from such experiments, however, compel us to adopt an even more ambitious approach, in which we strive to combine the information from many different branches of physics relevant to the dark matter problem, ranging from colliders and precision experiments to astrophysical and cosmological observations. This approach enables us to assess the viability of many different dark matter models and identify the most promising parameter regions. Nevertheless, combining such a wealth of information is challenging not only because of the wide range of different tools, but also because of the different analysis techniques and statistical methods used in the different fields. In my talk I will discuss how this challenge can be addressed using state-of-the-art numerical methods and software tools such as the global fitting framework GAMBIT. I will present results obtained from such global fits in the context of two of the most popular dark matter models, namely WIMPs and axions.

Der Vortrag findet um 15:45 Uhr im Otto-Lehmann-Hörsaal, Physik-Flachbau (Geb. 30.22), statt.

Zusätzlich wird der Vortrag im Livestream angeboten:

<https://kit-lecture.zoom.us/j/67355183015>

Meeting ID: 673 5518 3015

Passcode: 613110