TECHNISCHE UNIVERSITÄT DRESDEN

Faculty of Physics

PHYSICS COLLOQUIUM

and GET-TOGETHER

Speaker: **Prof. Belina von Krosigk**
Heidelberg University,
Kirchhoff-Institute for Physics,
Heidelberg

Topic: **DELight: when helium sweats over dark matter**

Time and place: Tuesday, February 4, 2025, **2:50 pm** – hybrid event
The colloquium will be held in REC/C213.
Online participation possible:
Zoom-Meeting: Meeting-ID: 631 3817 8900 / passcode: PC-WiSe24
https://tu-dresden.zoom-x.de/j/63138178900?pwd=E3ujrdyvlnABCPexxEhG5XErr7Cv5B.1

Host: Dr. Björn Lehnert

Abstract: In recent decades, astronomical and cosmological observations consistently reveal that most of the Universe's matter remains hidden to even the most sensitive telescopes due to its nonluminous nature—dark matter. Exploring dark matter particles has become a tantalizing pursuit in modern physics. New-generation direct search experiments are poised to observe weak-scale dark matter particles, with successors already in planning. Simultaneously, a new era has begun for the direct detection of ever lighter dark matter candidates, leveraging novel detector designs with ultra-low detection thresholds. These advancements enable the exploration of new detection channels and unprecedentedly low dark matter masses. This presentation summarizes the state-of-the-art in direct light Dark Matter searches and highlights a new project, DELight, which will take advantage of the unique properties of superfluid helium-4 to search for Dark Matter down to the sub-100MeV mass scale.

Bio: 05/2010-06/2015: Dr. rer. nat. (Physics), Technische Universität Dresden, Supervisor: Prof. Kai Zuber / 01/2010: Diplom (Physics), Universität Hamburg, Germany, Supervisor: Prof. Caren Hagner // 03/2023–present: Professor of Experimental Physics, Heidelberg University, Kirchhoff-Institute for Physics, Germany, CRESST (ongoing experiment), Member, DELight (upcoming experiment), Spokesperson DARWIN/XLZD (next generation experiment), Member / 07/2019–present: Emmy Noether Junior Research Group Leader (Universität Hamburg & Karlsruhe Institute of Technology.

Get-Together:

The colloquium will be followed directly by a Get-Together with Prof. Belina von Krosigk in REC/B101 (around 4:00 p.m.). All students and staff are invited to talk to the speaker and discuss perspectives on the academic career, work-life balance and the professional life as a scientist.