



LECTURE COURSE IN THE QUANTUM UNIVERSE RESEARCH SCHOOL

Winter Term 2023/2024

Experimental Astroparticle Physics

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Course Description:

In this course we will present an overview on Astroparticle Physics with emphasis on Experimental and Observational techniques. We will cover experimental investigations of neutrino mass, neutrino oscillation in the laboratory as well as with celestial sources of neutrinos. Besides energetic neutrinos, charged cosmic-rays and gamma-rays are used in a multi-messenger approach to understand cosmic accelerators including active galactic nuclei and supernova remnants. Finally, the recent advances in searches for Dark Matter will be covered including an introduction to the phenomenology of heavy and light Dark Matter.

Prerequisites:

Background knowledge in Astrophysics and Particle Physics at the level of introductory undergraduate courses are useful.

Literature:

- Reading material will be provided, mostly original papers and reviews
- During the exercise, participants will be offered to present a talk or write a review on a selection of current research topics.

Date and Place: Thu, 9:00–10:30, SR 3114, Notkestr. 9, Bahrenfeld
Fri, 12:30–14:00, SR 3114, Notkestr. 9, Bahrenfeld

Problem Classes: Thu, 10:45–12:15, SR 3114, Notkestr. 9, Bahrenfeld

Starting on: 19 October 2023
