

The MESA physics programme

Thursday, 19 October 2023 11:00 (30 minutes)

The Mainz Energy-Recovering Superconducting Accelerator, MESA, is currently under construction at the Institute of Nuclear Physics in Mainz.

Three experiments will be run there, allowing for a comprehensive physics programme to be conducted.

An external beamline will supply spin-polarized electrons to the P2 experiment, enabling the performance of sensitive tests of the Standard Model through parity-violating electron scattering. The primary objective of the P2 experiment is to achieve a precision measurement of the weak mixing angle. The DarkMESA beam dump experiment, situated behind P2, will run in parallel to P2 and is dedicated to the search for light dark matter particles. The focus of the talk, however, will be the versatile MAGIX experiment which will use MESA's innovative energy recovery technique, which enables the generation of extremely high beam intensities. The setup is equipped with a cryogenic gas jet target and high-resolution magnetic spectrometers. The science focus is on high-precision electron scattering experiments including dark sector searches, the study of hadron structure and few-body systems, and investigations of reactions relevant to nuclear astrophysics.

Parallel Session

Invited Plenary Talk

Primary author: SCHLIMME, Sören (JGU Mainz)

Presenter: SCHLIMME, Sören (JGU Mainz)

Session Classification: Plenary talk