

Physics opportunities with relativistic rare ion beams at R3B/FAIR

Monday, 27 May 2024 10:35 (25)

R3B is a scientific collaboration of FAIR working towards the realization of an apparatus, located at the end of the High-Energy Branch of this facility, that will receive exotic isotopes of any chemical element from Hydrogen up to Uranium moving at energies around 1 A GeV. R3B will allow us to explore the limits of the nuclear shell model, to study exotic (barionic and strange) nuclear matter and to reproduce in the laboratory some relevant astrophysical scenarios as neutron stars.

In this talk, we will present the state of progress of the project and give a comprehensive overview of the planned research programme. Preliminary results from the Phase-0 experiments will also be discussed.

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Session Classification : Session 1