Contribution ID: **2351** Contribution code: **SUPM074** Type: **Student Poster Presentation**

Avoiding overcooled ion beams by exciting energy spread through electron cooling

Sunday 1 June 2025 14:00 (2 hours)

Ion accelerators use electron cooling to improve luminosity and beam lifetime. However, extremely low momentum spread in a cold beam weakens Landau damping, enabling the development of instabilities and potentially decreasing lifetime. To combat this, the NICA Booster electron cooling system allows to generate electron beams with oscillating energy to increase the momentum spread in ion beams. Here we describe the implementation of the energy oscillation technique and provide numerical calculations predicting the achievable momentum spread.

Footnotes

Paper preparation format

LaTeX

Region represented

Asia

Funding Agency

Author: Mr URAZOV, Eldar (Budker Institute of Nuclear Physics)

Co-authors: BRYZGUNOV, Maxim (Russian Academy of Sciences); PARKHOMCHUK, Vasily (Russian Academy of Sciences); REVA, Vladimir (Russian Academy of Sciences); ZHARIKOV, Aleksandr (Russian Academy of Sciences); LEBEDEV, Valeri (Joint Institute for Nuclear Research); SERGEEV, Anton (Joint Institute for Nuclear Research)

Presenter: Mr URAZOV, Eldar (Budker Institute of Nuclear Physics)

Session Classification: Student Poster

Track Classification: MC4: Hadron Accelerators: MC4.A11 Beam Cooling