



INVITATION

for a

VERA - SEMINAR

with

Dr. Olli Tarvainen

UK Research and Innovation, Science and Technology Facilities Council,
Rutherford Appleton Laboratory

Negative ions in particle accelerator applications

Negatively charged ion beams are essential for a host of particle accelerators and their applications. In my talk I will review the physics of negative ion formation in plasmas and on solid material surfaces, and explain the fundamentals of ion sources producing negative ion beams. I will then highlight the importance of negative ion beams with three examples: charge exchange injection into synchrotrons or storage rings, neutral beam heating of thermonuclear fusion plasmas and particle acceleration with electrostatic tandem-type accelerators. The advantages and drawbacks of using negative ion beams instead of their positive counterparts are discussed in each case. I will describe research efforts to improve the understanding and efficiency of negative hydrogen ion production in so-called volume and surface ionisation ion sources at Rutherford Appleton Laboratory. Finally, I will discuss recent advances in laser-assisted heavy ion production with caesium sputter negative ion sources for electrostatic accelerators.

Thursday, 12.10.2023, 16:30 o'clock

**1090 Wien, Währinger Str. 17, "Kavalierstrakt",
1. Stock, Victor-Franz-Hess Hörsaal**