Development of a Polarized H⁺/D⁺ Ion Source at IMP





Y. J. Zhai^{1,2}, S. Zhang^{1,2}, Q. Y. Jin^{1,2}, X. Z. Zhang¹, L. T. Sun^{1,2,a}

¹Institute of Modern Physics, Chinese Academy of Sciences, Lanzhou 730000, China

²School of Nuclear Science and Technology, University of Chinese Academy of Sciences, Beijing 100049, China

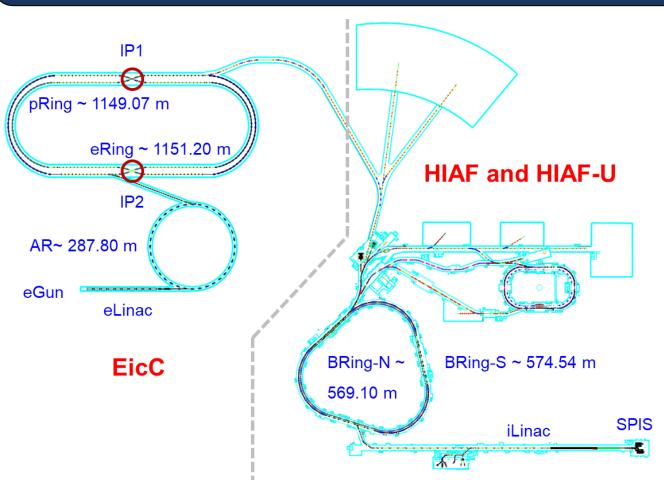
a) Author to whom correspondence should be addressed: sunlt@impcas.ac.cn



Quenching Chamber

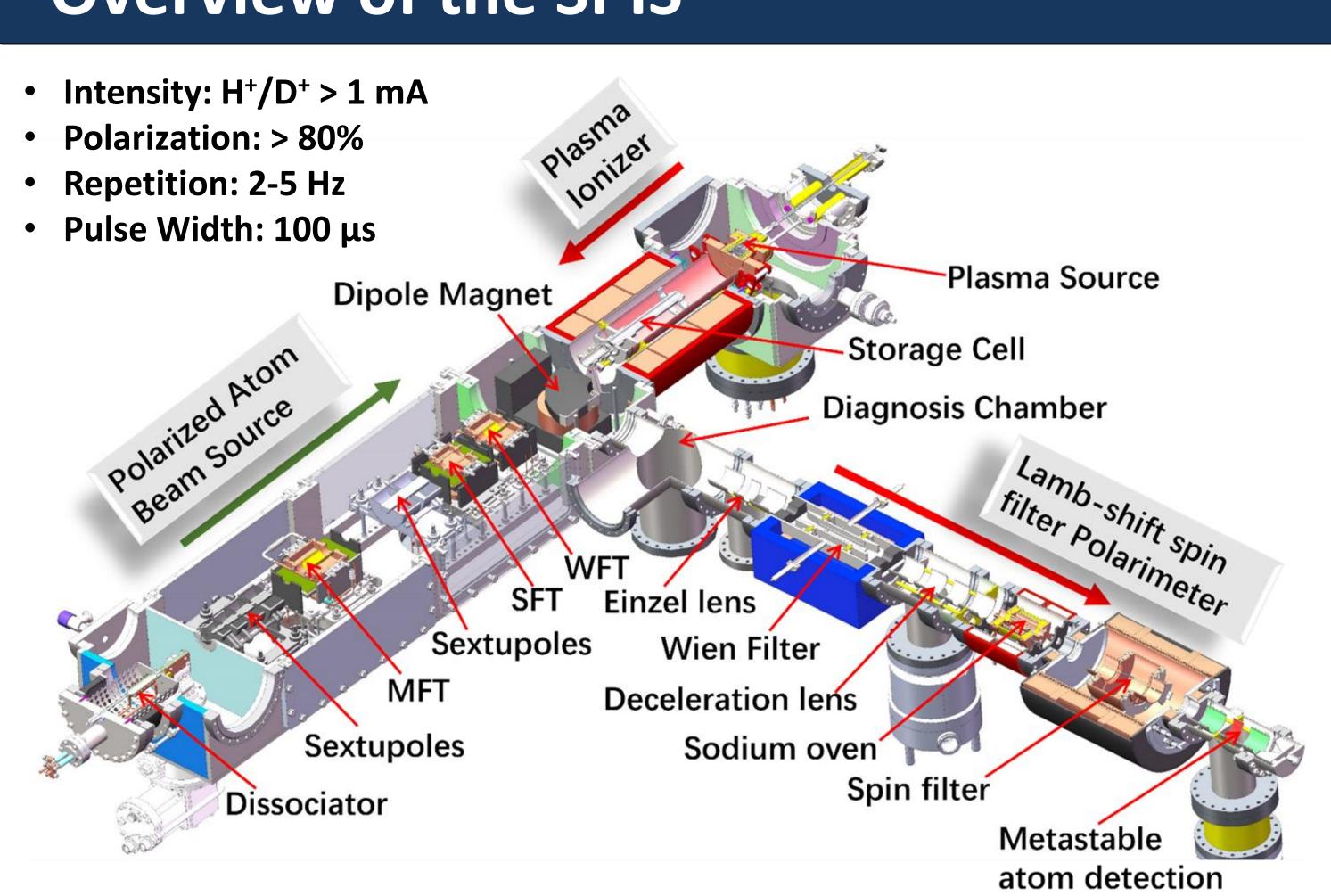
Spin Filter

Background

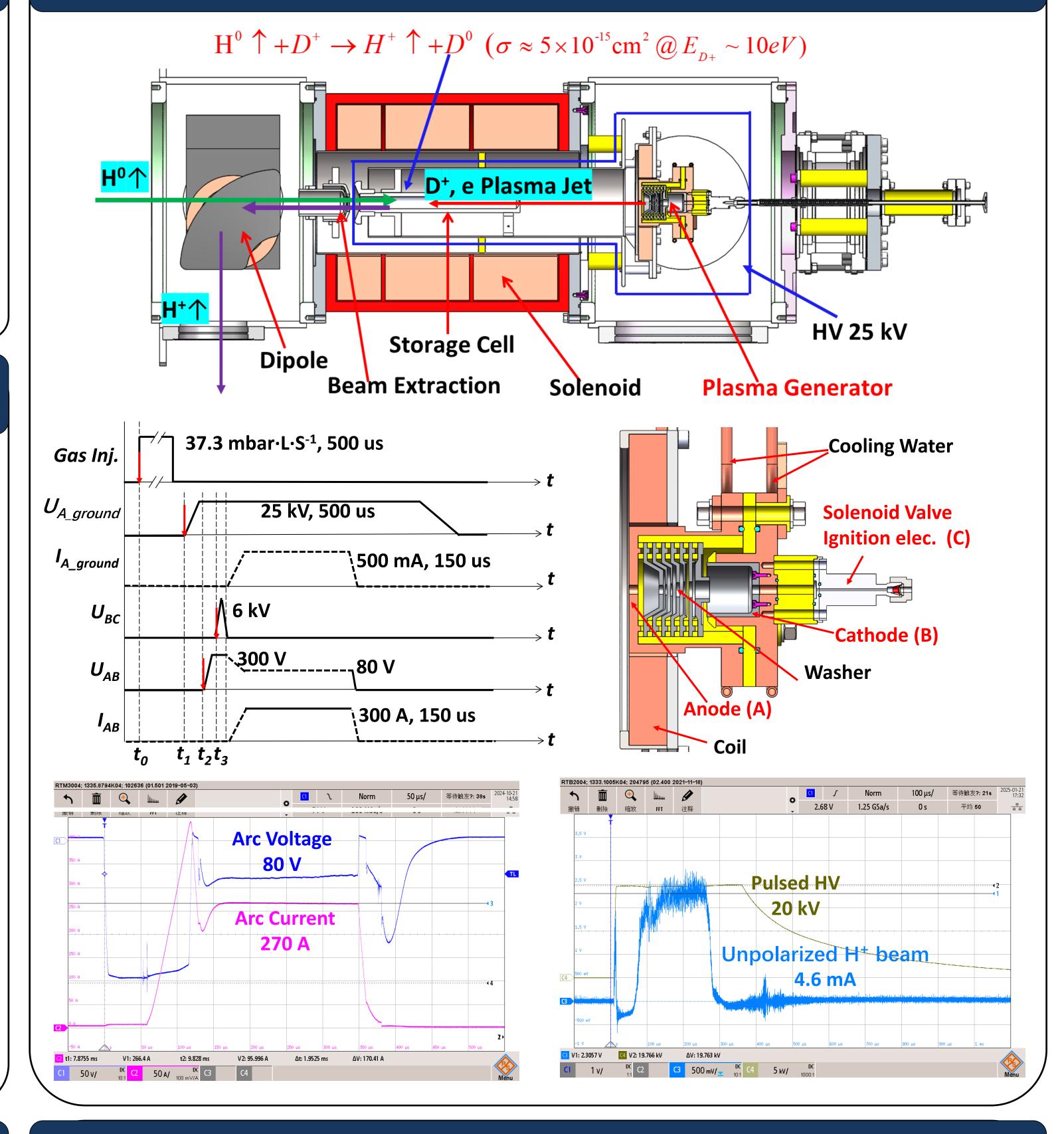


- A spin polarized ion source (SPIS) is under development as one of the R&D projects for EicC.
- The SPIS will be used for polarized beam studies and spin physics at HIAF before EicC.
- A Lamb-shift polarimeter is being developed for measuring the polarization of beams extracted from the SPIS.

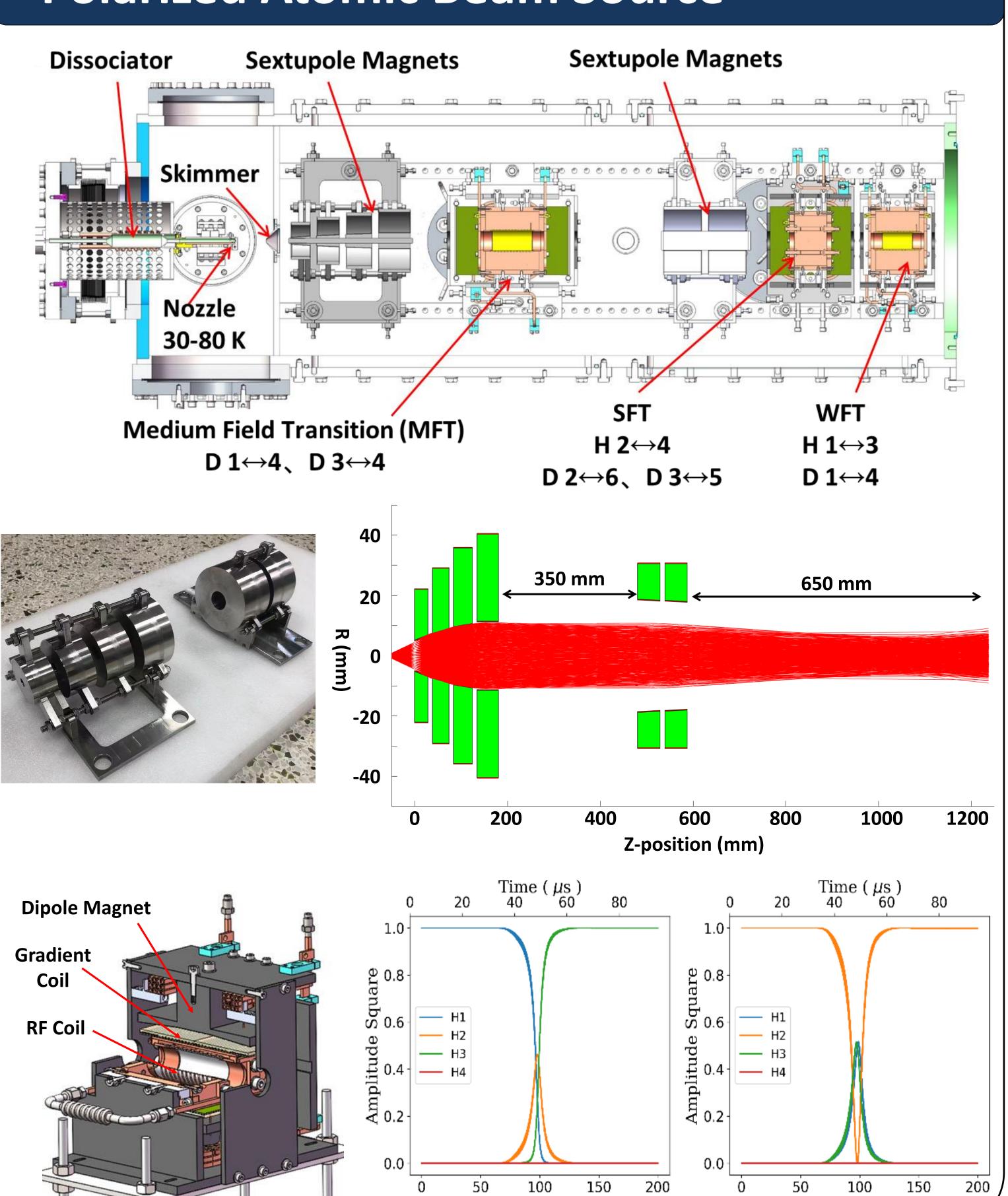
Overview of the SPIS



Plasma Ionizer



Polarized Atomic Beam Source



100

Position (mm)

50

Position (mm)

50

Lamb-shift Polarimeter

Transport efficiency 8%

Polarization measurement of pulsed beams with a precision of 1% in a few seconds.

