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H- source characterization and transfer line studies with realistic EM fields in the Extra Low Energy Antiproton Decelerator (ELENA) at CERN

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A local H⁻/p source is operated at the CERN Extra Low Energy Antiproton (ELENA) decelerator for commissioning the ring and subsequent electrostatic transfer lines toward the experiments. For proper optics characterization, it is important to have a detailed knowledge of the H⁻ beam parameters at the source. Phase space tomography techniques were applied to reconstruct the beam distribution at the measurement point, which was then tracked backward to the H⁻ source using symplectic field maps to calculate the beam matrix. Due to the presence of an ion switch a highly non-linear behavior with significant deviation from the linear model was observed. The SIMPA tracking code allows EM fields in the transfer line to be treated continuously and as a whole.

Footnotes

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LaTeX

Region represented

Europe

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