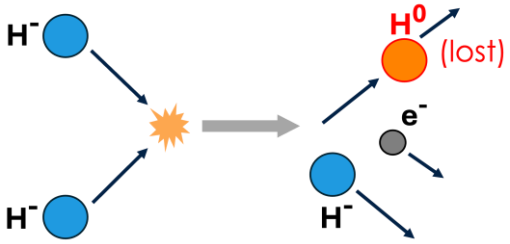
A new way to calculate Intra-Beam Stripping (IBSt) losses

1 The Problem



Close Encounter (stripping occurs) **Products**

$$H^- + H^- \rightarrow H^0 + H^- + e^-$$

IBSt calculations require evaluating a high-dimensional integral.

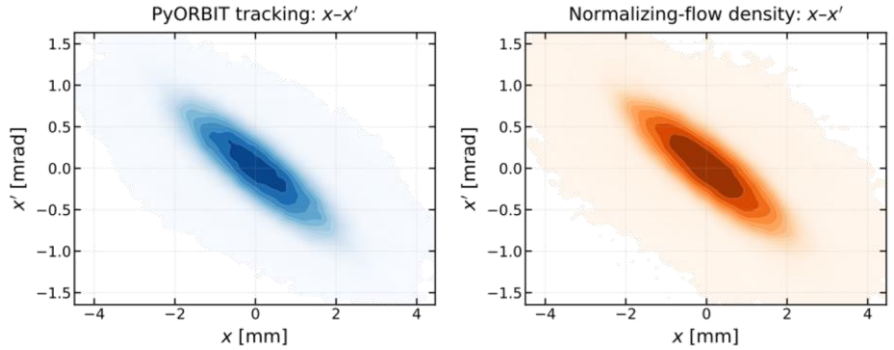
$$\frac{dN}{dt_{rest}} = \frac{N^2}{2} \int |u|\, \sigma_H(|u|)\, f(v_1, r_1) f(v_2, r_2)\, \delta(r_1 - r_2) d\Gamma_1 d\Gamma_2$$

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Space Charge Workshop 2026

2 Challenges with Monte Carlo Integration

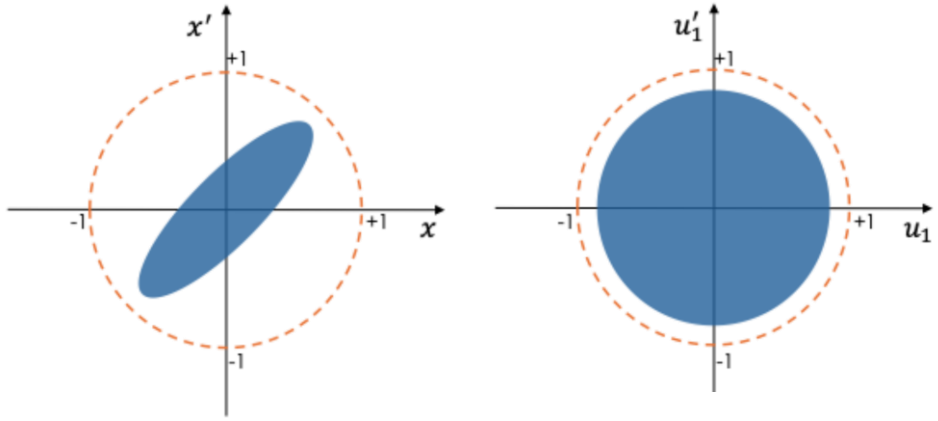
1) Representing the beam distribution

Normalizing Flow



2) Efficient Monte Carlo sampling

Normal-Form Coordinates



3 IBSt loss prediction along the SNS linac

