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Particle Remapping with Deformation Tracking for Collisionless Fluid Flow

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**Abstract content \
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Particle-in-Cell methods are a popular approach to numerically modelling collisionless fluids for plasma physics and cosmology applications. However, these methods are known to suffer from particle noise that reduces the accuracy of the obtained solutions for long time evolutions. Phase-space remapping can reduce these errors, but is computationally expensive when applied globally. We will discuss a local remapping strategy that tracks the deformation of the particles from their initial coordinates and only remaps in regions of the flow where the particle stretching has become too large.

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