



Contribution ID: 2511 Contribution code: WEPA069

Type: **Poster Presentation**

## Macroparticle collisionality in PIC solver

*Wednesday, 10 May 2023 16:30 (2 hours)*

Traditionally PIC solver compute electric field created by the beam as a mean field. The effect of particle collisions is normally neglected by the algorithm. In this proceeding we address how to include the collisions between the macro particles, and discuss the computational challenges and strategies to include the collisionality in PIC solvers as particle-particle interaction. We present simulations that benchmark our understanding and analyse potential artifacts as energy conservation or other effects.

### Funding Agency

HELMHOLTZ FORSCHUNGSKADEMIE HESSEN FÜR FAIR (HFHF)

### Footnotes

### I have read and accept the Privacy Policy Statement

Yes

**Primary author:** ENGEDA, Alexander (Goethe Universität Frankfurt)

**Co-author:** FRANCHETTI, Giuliano (GSI Helmholtzzentrum für Schwerionenforschung GmbH)

**Presenter:** FRANCHETTI, Giuliano (GSI Helmholtzzentrum für Schwerionenforschung GmbH)

**Session Classification:** Wednesday Poster Session

**Track Classification:** MC5: Beam Dynamics and EM Fields: MC5.D11: Code Developments and Simulation Techniques