

Fast Frozen Indirect Space Charge Modelling

Robert Simpson — Department of Physics, University of Oxford

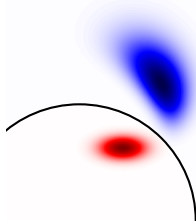
Indirect Space Charge

- ▶ Field produced by mirror currents in conductive surroundings
- ▶ Can drive instability-causing resonances

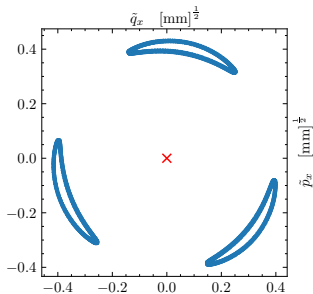
Frozen Modelling

- ▶ Faster computation*
- ▶ Fewer particles *
- ▶ Symplectic

*Compared to collective/PIC modelling



ISIS RCS Model



$3Q_x = 13$ resonance
Poincaré plot



UNIVERSITY OF
OXFORD



Science and
Technology
Facilities Council

ISIS Neutron and
Muon Source