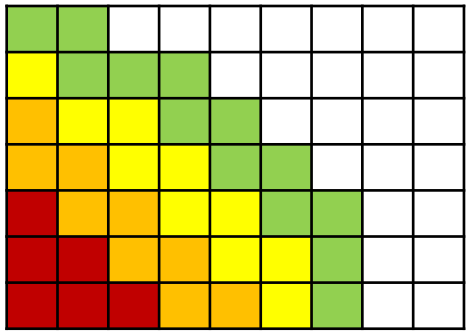
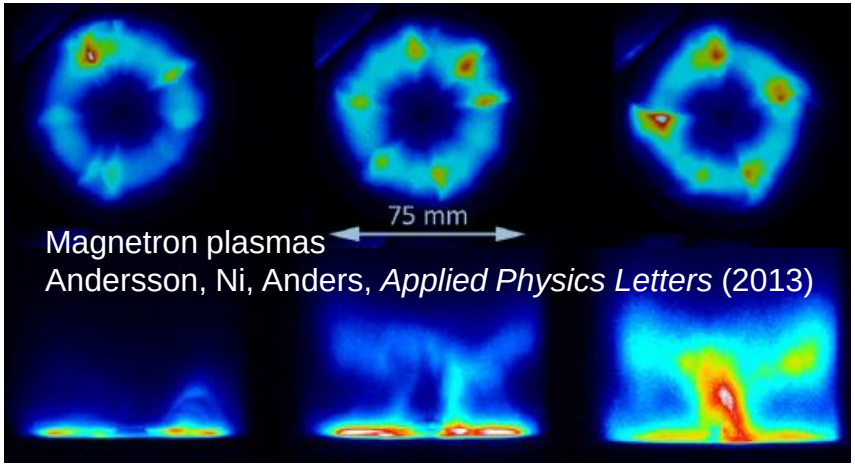
Kinetic (particle) code captures anomalous resistivity and beam formation in plasmas

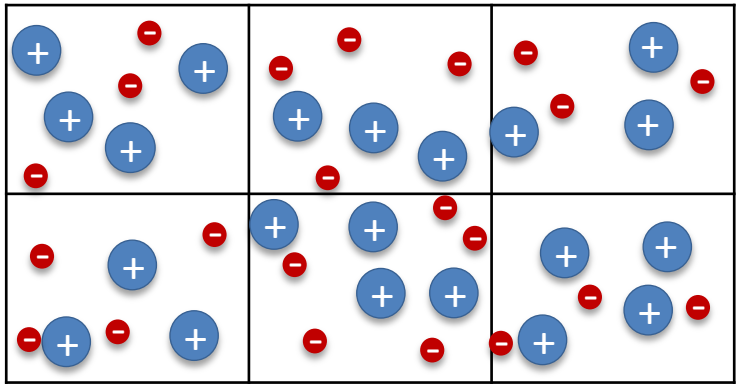
A. Schmidt
Lawrence Livermore National Laboratory



Fluid picture: each "pixel" is a fluid element with a density, temperature, and velocity

Applications:





Kinetic picture: each "pixel" is a collection of particles; density, internal energy, and velocity are derived from collection

- Dense plasma focus (DPF) neutron sources (flash neutron imaging, active interrogation)
- Field ionization sources
- Breakdown in gas switches, LIAs, across insulators in pulsed power
- High power impulse magnetron sputtering (HiPIMS)
- Kinetic effects in NIF capsules

Prepared by LLNL under Contract DE-AC52-07NA27344.