



Contribution ID: 5

Type: oral presentation

## Relativistic plasmas and beams, and the radiative self-force

*Thursday 11 July 2013 14:00 (20 minutes)*

Contemporary advances in ultra-intense laser facilities have driven the recent surge of interest in the collective behaviour of charged matter in extreme conditions, and a particularly vexing topic in that context concerns the coupling of an electron to its own radiation field. In most practical cases, the Lorentz force on an electron, due to an applied electromagnetic field, is considerably larger than the force due to the electron's emission and the effect of the recoil due to the emitted radiation is negligible or can be adequately represented using simple physical reasoning. Although such arguments avoid the difficulties that plague more comprehensive analyses, the parameter regimes promised by forthcoming ultra-intense laser facilities, such as ELI, ensure that more fundamental considerations are now of practical necessity.

We will discuss recent developments in relativistic kinetic and fluid theory in the above context.

Refs: J. Math. Phys. 54, 043101 (2013); arXiv:1303.7385

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**Session Classification:** Plasmas and Radiation Reaction