Contribution ID: **248** Type: **talk**

# Hot electron currents in ultra-intense laser-solid interactions

*Thursday, 17 September 2015 19:00 (20 minutes)*

The generation and propagation of strong currents of laser-accelerated hot electrons in solid density foils is of importance in many applications such as resistive heating, generation of resistive magnetic fields and ion acceleration. We present results from particle-in-cell simulations for the scaling of hot electron currents in solids and demonstrate the importance of a full description of the currents with respect to its spectral distribution and spatio-temporal structure. Taking them into account, we derive analytic scalings from first principle conservation laws that as an input to models for heating, magnetic field generation or ion acceleration prove to be consistent with the simulations in contrast to simple expressions such as j=\gamma n_c.

**Primary author:** KLUGE, Thomas (=)

**Presenter:** KLUGE, Thomas (=)

**Session Classification:** WG6 - Theory and simulations

**Track Classification:** WG6 - Theory and simulations