



Contribution ID: 25

Type: **not specified**

## Ultra-high energy density physics in aligned nanowire arrays

*Wednesday, June 21, 2017 4:00 PM (1h 45m)*

The creation of ultra-high energy density (UHED,  $>1 \times 10^8 \text{ J/cm}^3$ ) plasmas in compact laboratory setups enables studies of matter under extreme conditions and can be used for the efficient generation of intense x-ray and neutron pulses. An accessible way to achieve the UHED regime is the irradiation of vertically aligned high-aspect-ratio nanowire arrays with relativistic femtosecond laser pulses. These targets have shown to facilitate near total absorption of laser light several micrometers deep into near-solid-density material. We investigate the depth of the volumetric heating and a mechanism causing the wires to pinch, thereby delaying the hydrodynamic expansion and achieving extremely high energy and particle densities.

**Primary author:** Mr KAYMAK, Vural (Heinrich Heine Universität Düsseldorf)

**Co-authors:** Prof. PUKHOV, Alexander (Uni Dusseldorf); Prof. ROCCA, Jorge J. (Colorado State University); Dr SHLYAPTSEV, Vyacheslav N. (Colorado State University)

**Presenter:** Mr KAYMAK, Vural (Heinrich Heine Universität Düsseldorf)

**Session Classification:** Poster Session with Coffee break