



Physikalisches Kolloquium

Thursday, 14.12.2017, 17:15, HS 100

Reception with coffee & cookies 16:45

(For university staff: please bring your own cup for sustainability reasons)

Prof. Dr. John Costello, Dublin City University, Ireland:

Stagnation layers at the collision front between counter-streaming laser produced plasmas: formation, properties and potential applications

Abstract

When two (or more) expanding laser produced plasmas collide there are two extreme outcomes – in one case the plasmas stagnate and a hard and well defined layer is formed as material from the constituent plasma plumes accretes at the collision plane [1,2] – at the other extreme the plasma plumes interpenetrate and the interaction is considered to be essentially due to collisionless shocks [3]. They are of growing importance in many fields, e.g., in e.g., hohlraum studies [3] and pulsed laser deposition [4]. The talk will focus on the creating and diagnosing stagnation layers and also point out some of their unique features (time synchronised, free standing, droplet-like, shape controllable, temperature and density controllable, increased dwell time over single plasmas, etc.) that might make them of interest for experiments at intense VUV and X-ray FELs [5].

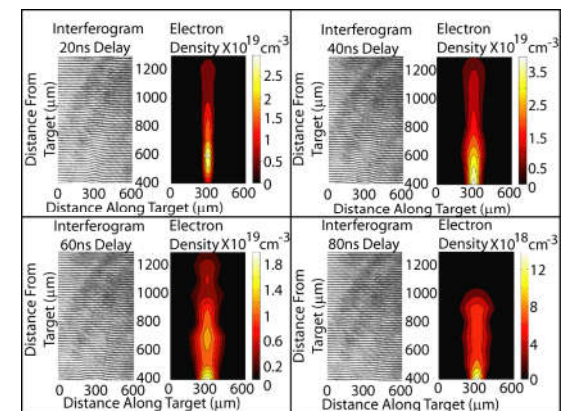
[1] C Fallon, P Hayden, N Walsh, ET Kennedy and J T Costello, *Physics of Plasmas* **22** 093506 (2015)

[2] P K Pandey, R K Thareja and J T Costello, *Physics of Plasmas* **23** 103516 (2016)

[3] J. S. Ross et al., *Phys. Rev. Lett.* **110** 145005 (2013)

[4] E. Irissou, F. Vidal, T. Johnston, M. Chaker, D. Guay, A. N. Ryabinin, *J. Appl. Phys.* **99** 034904 (2006)

[5] W Helml, I Grguras, P N Juranic, S Duesterer, T Mazza, A R Maier, N Hartmann, M Ilchen, G Hartmann, L Patthey, C Callegari, J T Costello, M Meyer, R N Coffee, A L Cavalieri and R Kienberger, *Appl. Sci.* **7** 915 (2017)



All of you interested in physics are cordially invited!