"Osaka Univ. to ELI-NP"

Kazuo A. Tanaka,
Osaka Univ., Osaka Japan & ELI-NP, Bucharest Romania

Abstract.

Since Dana Strickland and Gerard Mourou have invented the CPA scheme [1], ultra-intense laser systems have been developed and have been deployed all over the world covering many physics applications such as particle acceleration, laser fusion, EOS etc. Fast ignition in laser fusion involves a short laser pulse within 1-10 pico seconds in the experiments at laser intensities at 10^18 W/cm^2 or high above and has been my major research subject for more than 15 years [2].

How high can we reach in the laser systems? What kind of physics can be tested? To answer these questions 10^23 W/cm^2 intensity has been recently claimed to be built as an experimental platform at ELI-NP [3] where I am going to be deeply involved as the Science Director as of Sept 2016.

The ELI-NP will be introduced after my brief review of laser plasma physics history.

1. D. Strickland and G. Mourou: Opt. Commun. 56 (1985) 219.
2. M Tabak, D Hinkel, S Atzeni, EM Campbell, and KA Tanaka, Fus. Sci. Tech., 49, 254 (2006)
3. ELI-NP: http://www.eli-np.ro/