



RECENT ADVANCES ON LASER-PLASMA ELECTRON ACCELERATORS AT ELI-ALPS



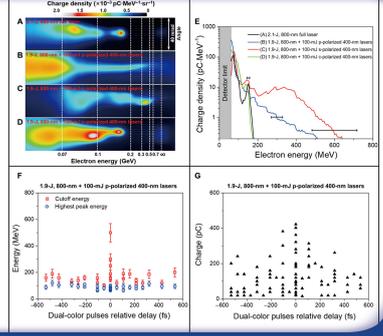
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PROF. NASR A. M. HAFZ
ELI-ALPS, HUNGARY-EU

HOSTED BY
MOHAMED EZZAT, MSc

 **THURSDAY, 30 JUN 2022**

 **TIME 17:30 (CAIRO)**



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Title: Recent Advances on Laser-Plasma Electron Accelerators at ELI-ALPS

Speaker: [Prof. Nasr A. M. Hafz](#) (ELI-ALPS, Hungary-EU)

When: 2022-06-30 17:30:00 - **Hosted by:** Mohamed Ezzat, MSc

Abstract: There has been a dramatic advance in commercial/home-built high-power ultra-compact laser systems around the world during the last two decades. This has led to significant advances in the physics and potential applications of relativistic laser-plasma interactions in which electron acceleration, via the laser wakefield acceleration (LWFA) mechanism, is the chief subject so far. The LWFA has led to acceleration of up to 8 GeV maximum electron beam energies in 2018 (LBNL, USA). On the other side, novel experimental work includes the electron acceleration in plasma wakefields excited/driven by high-energy proton beams (CERN), dual-color LWFA (SJTU and ELI-ALPS), and the operation of a LWFA for 24 hrs continuously without a stop (DESY, Germany) to serve as an injector for high-energy conventional accelerator at DESY. On the applications frontiers, there has been a dramatic advance on using hard betatron X-rays, inherently generated in LWFA along with the electron beams, for micro-computed tomography (IC-London), phase contract imaging and WDM probing (LOA, France). In this talk the author will discuss some of those subjects as well as the ongoing work in his own group at ELI-ALPS using high repetition rate laser systems.

Email: info@egyplasma.com - **Website:** egyplasma.com/talks/