Contribution ID: **94** Type: **not specified**

Recent developments on a single beamline 10PW laser system ILE/APOLLON and associated bottlenecks investigation for the future ELI Ewawatt laser

Monday, 25 May 2009 10:00 (30 minutes)

We will describe in detail the laser design concerning the construction of a single beamline Ultra Intense Laser delivering 10PW pulses (150J /15 fs) at 1 shot par minute repetition rate. This laser funded by the French program ILE/APOLLON is presently under construction and will be fully operational in 2013. It could be considered as a prototype beam for the ELI Multibeam laser expected to deliver 200PW (3KJ /15fs).
To reach such a level of performances, several bottlenecks have been oinvestigated and overcome. We will discuss the work done on new large size Titanium Sapphire crystals, on high performance non linear SHG crystals, on new compressor gratings concepts and on large pump lasers.
Today we consider that the ILE bottlenecks are overcome. We will present what could be the future ELI Laser architecture and the remaining technological bottlenecks which still need to be overcome, and coherent beams combining, high damage threshold broadband reflective optics, and large deformable mirrors.

Primary author: CHAMBARET, Jean Paul (LOA ENSTA)

Presenter: CHAMBARET, Jean Paul (LOA ENSTA)

Session Classification: Session 1 - New Laser Sources: High Energy-High Power

Track Classification: contribution