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# Apollon laser facility present status

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Recent large investments have been plan to build laser facilities for achieving intensity never reached before. The progress made in recent decade in laser technology allows us to envision laser facilities with repetition rate high enough to ensure the laser parameters stabilities and an increase of the statistic of the different measurement made in plasma physics with Laser.
High-intensity high-energy lasers are one of the best compact tools to concentrate in a controllable manner, large among of energy in space and time. Consequently, a whole range of high-energy particles (electrons, protons, highly charged ions, neutrons) and radiation, up to x-rays and gamma-rays can be produced as a result of the interaction with targets that can be either solid or gaseous.
Studying interaction using higher and higher intensities is of fundamental interest because it continuously opens the possibilities to explored new regimes, like in particle acceleration or atto-second X-ray sources. Another motivation for the scientific community, is that the generation of such particle and radiation beams, intrinsically synchronised with the laser beam that has generated them, opens an extremely wide range of pump probe applications.
The Apollon is an upcoming laser facility capable of providing multi-PW peak power pulses at a repetition rate of 1 shot/minute. In order to achieve this extreme peak power level, Apollon is based on the generation of extremely short pulses of 15 fs. Employing state of the art technology, the OPCPA-based front-end generates high quality and high temporal contrast pulses at 820 nm with broad spectrum supporting sub-10 fs duration. Energy amplification up to 300 J is then realized in the power amplification section composed of 5 stages of Ti:Sapphire multi-pass amplifiers. The amplified chirped pulses will finally be compressed in an unfolded four-grating compressor. The objectif of Apollon facility is to deliver high intensity laser beams on target for users. The design and the status of the Apollon facility will be presented.

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