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Roadmap at Amplitude for high average power PW system

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Amplitude is involved in the increase of the average power of high energy system since 10 years. In the frame of ELI ALPS, we have already reached the level of 100W of average power on a 500TW at 10Hz (20fs) and we should be above 300W in the next 2 years. This results are possible thanks to the development of a new range of pump laser based on Nd:YAG liquid cooled disk laser head.

Today using flashlamp pumping we have already demonstrated pump laser generating 500W (50J/10Hz) in the green (Premiumlite product).

In the next few years, the use of diode pumping will allow us to further increase the repetition rate while keeping high energy per pulse. This new development has started in Amplitude in 2022 we will present our roadmap with to goal to reach more than 2kW pump laser in the green at 100Hz

In parallel to this roadmap we are also working on important topics that are needed to manufacture a high repetition rate multi 100's of TW TiSa laser with the level of reliability and ease of use needed for plasma accelerator.

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Session Classification: Special Topic