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First experimental results of an OPCPA seed for a long-term stable plasma acceleration drive laser

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Laser-plasma acceleration promises to be a powerful technology for driving future compact light sources. The LUX laser-plasma accelerator is driven by the 200 TW ANGUS Ti:Sapphire laser system which has been designed aiming for long-term stability, enabling stable operation over many hours. Demonstrating this during several 24-hour runs, enough data for reliable statistics could be taken. However, the experimental results indicate that additional development on the laser is required to further enhance the performance of the plasma accelerator.

Here, we will present first experimental results from MALCOLM, an OPCPA-based front-end for the ANGUS drive laser, which is currently being built in our group. With the white light seed and pump generated from the same commercial industrial grade femtosecond Yb:KGW laser, the initial OPCPA stage is designed for spectral and pulse energy stability.

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