

The Spanish Petawatt Laser: high repetition rate challenges

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Abstract:



At the Salamanca Pulsed Lasers Center we are operating the VEGA laser. VEGA has a common front end and one line, VEGA-2, at 200 TW (6J/30 fs 10Hz) and other line, VEGA-3, at PW (30J/30 fs, 1 Hz). In both cases we are trying to specialize the center in high repetition rate experiments, because the future of the technology is to increase the repetition rate, particularly if one is looking for practical applications in technology of in biomedicine.

Operating those high intensity systems at single shot is relatively straightforward. However, operation at full repetition rate implies a number of relevant challenges. Some of the difficulties are related to the laser itself, but most of them to the experimental set-up and the detection.

The talk will present the Salamanca Pulsed Lasers Center, the laser VEGA, and will analyse the challenges we need to face for high intensity high repetition rate experiments, particularly with high density targets.