

BLIN4: Salamanca experience on the high repetition rate experiments challenges

Luis Roso, on behalf of all CLPU team

At CLPU Salamanca we have one of the few petawatt lasers able to fire once per second. Also we have a 200 terawatt system at 10 Hz. But besides the laser, convenient targets and experiments specifically designed for high repetition rate are to be developed and this represents a great effort and an important change in the users community.

The main problems related to high repetition rate, based on our own experience, will be quickly reviewed. Those problems can be grouped in the following categories: laser technology, target design, detection (including data acquisition), and shot to shot metrology. Not to mention other problems as degradation of the components, electromagnetic pulses, and radio protection issues. Single shot and high repetition rate experiments are conceptually different. A convenient design of future generation of experiments needs a lot of effort. This is going to be discussed. Also some comments on experiments with dilute targets of even "target less" experiments will be presented.