Abstract Submitted
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**Towards the use of electron ejection trajectories as a direct in-situ gauge of super intense lasers**[1] SMRITHAN RAVICHANDRAN, CALVIN HE, University of Maryland, College Park, ANDREW LONGMAN, University of Alberta, LUIS ROSO, Centro de Lseres Pulsados, ROBERT FEDOSEJEVS, University of Alberta, WENDELL HILL, University of Maryland, College Park, MAS COLLABORATION — With the advent of multi-petawatt laser facilities around the world comes the concomitant need for in-situ, reliable tools to measure the focal intensities with high precision and accuracy. Current methods to estimate the intensity largely rely on indirect approaches that are not made in real time. Thus, these methods are not sensitive to fluctuations from shot-to-shot, which prohibit real-time characterization of the pulse. In this presentation, we propose a method to extract the pulse intensity from the measurement of electron trajectories – energy and angular distributions – subsequent to ionization of residual gas by the pulse. We will discuss how to exploit over-the-barrier ionization to correlate the ejected electrons with their parent ion, which can be measured with a time-of-flight detector. The presentation will include an outline for a prototype experiment.

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