

Extreme Field Laser-Plasma Physics at UT Austin

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As of this year, the University of Texas at Austin has received the decommissioned LANL Trident Laser which for decades has been key facility for the study of high energy density plasma physics. By integrating this system into the existing Texas Petawatt Laser, one goal is to construct a new multi-petawatt beamline that, among other things, could allow us to probe the ultra-high intensity regime ($\sim 3 \times 10^{22}$ W/cm²) only recently becoming achievable by modern laser systems. Such intensity regimes could not only allow for high energy ion and electron acceleration, but direct measurements of quantum electrodynamic (QED) effects. In this poster, we will briefly overview a few of the current and future plans UT Austin and the Center for High Intensity Laser Science have to investigate this new intensity regime, as well as outline the proposed integration of the Trident Laser System with the Texas Petawatt.