

Magnetized laser-plasma interaction in the context of inertial fusion energy

Proposed in collaboration with ELI ERIC

Abstract: This thesis will explore the suppression of Laser Plasma Instabilities in Magnetized Laser Plasma. Recent research indicates that magnetized plasma affects backscattered light from laser-plasma instabilities. Being able to control Raman and Brillouin scattering instabilities (SRS and SBS) is expected to enhance coupling efficiency at the ablation front, resulting in stronger shock generation, both can be measured with available diagnostics at ELI Beamlines. The thesis will focus on both, simulations of Laser-Plasma Instabilities (LPI) and shock generation in magnetized plasmas as well as further diagnostic development and participation in experiments to measure this effect in realistic conditions. The student will also contribute to the design of single-shot microcoils driven by an auxiliary laser beam to generate strong magnetic fields on the order of tens of Tesla.

Type of thesis: dissertation thesis

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