

Optical Methods for measuring Laser-Produced Plasma Parameters

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Abstract

Studies of laser-produced plasma parameters and processes occurring during laser-plasma interaction are of great importance for fundamental physics and inertial confinement fusion research. Such investigations require appropriate nonperturbing diagnostics methods, of which the most effective and adequate are optical methods, i.e. those that use an electromagnetic wave as a probe. Optical methods provide information about the plasma properties, such as electron density distribution or spontaneous magnetic fields distribution, with high temporal and spatial resolution. During the lecture the most common optical laser plasma diagnostics will be presented such as interferometry, polarimetry and shadowgraphy, as well as less common complex interferometry. The basics of operation, limitations and challenges facing each diagnostics will be discussed, and the results of experimental measurements will be presented.

References

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