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Spectroscopic Characterization of Indium-Tin Laser Ablated Plasma

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Abstract : In the present research work we present the optical emission studies of the Indium (In)-Tin (Sn) plasma produced by the first (1064 nm) harmonic of an Nd: YAG nanosecond pulsed laser. The experimentally observed line profiles of neutral Indium (InI) and Tin (SnI) are used to extract the electron temperature (Te) using the Boltzmann plot method. Whereas, the electron number density (Ne) has been determined from the Stark broadening line profile method. The Te is calculated by varying the distance from the target surface along the line of propagation of plasma plume and also by varying the laser irradiance. Beside we have studied the variation of Ne as a function of laser irradiance as well as its variation with distance from the target surface.

Keywords : indium-tin plasma, laser ablation, optical emission spectroscopy, electron temperature, electron number density
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