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Seminar

Institute for Plasma Research

Title : Analysis of trace/impurity elements in the materials using LIBS technique

Speaker: Dr. Pravin Kumar Tiwari

Institute for Plasma Research, Gandhinagar

Date : 8th June 2021 (Tuesday)

Time : 10:30 AM

Venue : Online - Join the talk:

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Abstract

Laser-Induced Breakdown Spectroscopy (LIBS) as an analytical technique has many advantages because it is fast, free from sample preparation and causes little sample damage and can be applied in remote and hazardous environments. The sensitivity of LIBS is an important factor and generally low in case of trace elements present in sample. In this presentation, we discuss the time-resolved analytical performance LIBS technique with emphasis is given to improve the detection sensitivity of LIBS. Systematic experiments have been conducted to investigate the dependence on LIBS signals on the experimental parameters such as application of axial as well as transverse magnetic field, plasma in confined geometry and single and colliding plasma conditions. Role of detection geometry, distance and gate time on the LIBS signal are also discussed. Present results demonstrate the significant improvements in LIBS signal for trace elements present in the target sample with optimized experimental and LIBS parameters. The present results are tested for quantitative elemental analysis of different materials using calibration-free LIBS technique.
