

Seminar

Institute for Plasma Research

Title: Laser Ablation and Surface Structuring of Selected Solid Targets
Speaker: Dr. Nancy Verma
Raman Research Institute, Bengaluru
Date: 3rd February 2023 (Friday)
Time: 03.30 PM
Venue: Join the talk Online:
https://meet.ipr.res.in/join/9702335844?be_auth=NDgwOTU3
(*Conference ID: 9702335844; Password: 480957*)

Abstract

When an intense laser pulse is focused on a target, surface ablation and material removal occurs in the irradiated region if the pulse energy exceeds the ablation threshold of the material. Soft laser ablation can create surface features of various shapes and sizes depending on several factors. The high optical intensities of ultrafast laser pulses facilitate precision laser processing with several practical applications in diverse fields. Since the surface properties of solid targets (optical, wetting, mechanical, etc.) are governed by their morphology, laser-induced surface structuring is an ideal tool for surface modification. In this talk, I will discuss the fabrication of laser-assisted surface structures on semiconductor (silicon) and dielectric (fused silica and quartz) targets and the investigation of their optical, chemical, and morphological properties. These structures have been formed by employing femtosecond and nanosecond laser pulses. The influence of laser parameters (such as laser fluence, wavelength, pulse width, and spatial intensity profile) and processing environment on the structures is studied, and some of the potential applications are illustrated.
