

# Seminar

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## Institute for Plasma Research

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**Title:** Applications of holographic optics

**Speaker:** Dr. Raj Kumar

CSIR-Central Scientific Instruments Organisation,  
Chandigarh

**Date :** 13th August, 2018 (Monday)

**Time :** 10.00 AM

**Venue :** Seminar Hall, IPR

**Abstract :**

Holography is a lensless imaging technique for generating three dimensional images. In holographic process information from 3D objects is recorded on a light sensitive material by the effect of interference and is reconstructed from the hologram by the effect of light diffraction. When holographic recording is intended to serve the purpose of some optical element like a lens, grating, spectral filter etc. then it is known as holographic optical element (HOE) or simply the holographic optics. Holographic optical elements (HOEs) play an important role in realization of compact and efficient systems for specific applications. HOEs have many advantages over conventional optical elements like light weight, multifunctional, multiplexing, non-axial symmetric etc. In this talk I will discuss principle of holographic process and recording and reconstruction of holograms. Based on these basics, concept of holographic optics and its realization will be presented. Representative applications of holographic optics will be discussed and some holographic optics and systems based on holographic optics realized at CSIR-CSIO will also be discussed. One of the biggest drawbacks of conventional HOE recording technology based on analogue holography is that it is very difficult to get the repeatable results in terms of performance parameters of the HOEs like variation in diffraction efficiency. This has been a hindrance for many practical applications of HOEs. Some recent research efforts being made worldwide in order to tackle this issue will also be discussed.

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