

# Investigation of Fiber Bragg Grating Spectrum

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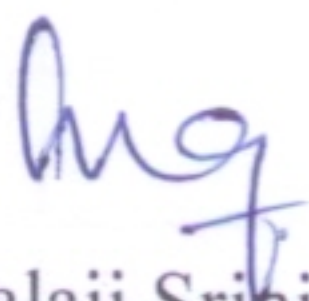
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## Objectives

- To understand the origin of different spectral features of Fiber Bragg Grating (FBG)
- To realize any desired spectrum by appropriately designing the index profile (using scanning beam fabrication technique)

## Approach

- Study of basics of FBG and its characteristics using coupled mode theory
- Matlab code was developed for plotting reflectivity and delay with respect to wavelength and compare the simulation results with the literature for uniform and non-uniform grating.
- Analysis of various index profile like Gaussian and Raised cosine profile to study how the effective index and the reflectivity have been effected.
- After getting the simulation results, FBG was fabricated on conventional fiber. This was done by exposing the photosensitive fiber of length 3mm to UV beam from KrF excimer laser source (248nm) diffracted by phase mask. This process is known as static method.
- To improve the reflectivity and index profile of FBG, the length of grating was increased from 3 to 9mm by scanning beam technique.
- Manuscript for Journal of Optics under preparation.



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