

**Department of Physics, IIT Kanpur**  
**Ph.D. State-of-the-art Seminar**

- Title:** Controlling light using optical antennas.
- Speaker:** Raghawendra Kumar (Roll no. 12109067)
- Date:** 09 April 2014 (Wednesday)
- Time:** 1600-1700 (tea @ 1545 hours)
- Venue:** FB 382 (Physics conference room)

All are welcome.

(Dr. S. Anantha Ramakrishna)  
Thesis Supervisor

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**Abstract:** Confinement of light to small volumes is of great importance for many applications ranging from solar concentrators, fluorescent enhancements, subdiffraction imaging etc. Nano-antennas provide a convenient way to manipulate light and enhance a range of linear and nonlinear phenomena. Nano-antennas can create intense, localized field distributions or enable coupling to highly subwavelength objects, which is generally not possible by optical components such as mirrors, lenses and gratings. In this seminar, I will give a basic introduction of optical nano antenna, and how it is used to concentrate light into subdiffraction volumes. I will also describe a two-photon polymerization technique to fabricate 3D micro and nanostructures, which will be used to fabricate nano-antennas. I will focus on the enhancement and coupling of fluorescence from single molecules using these antennas.

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