

Invited talk on “Celebrating Optical Tweezers and Ultra-short, ultra-intense LASERS”

Date: 02-02-2019

Participants: 150

Prof. B. N. Jagtap, Department of Physics, IIT Mumbai, Mumbai

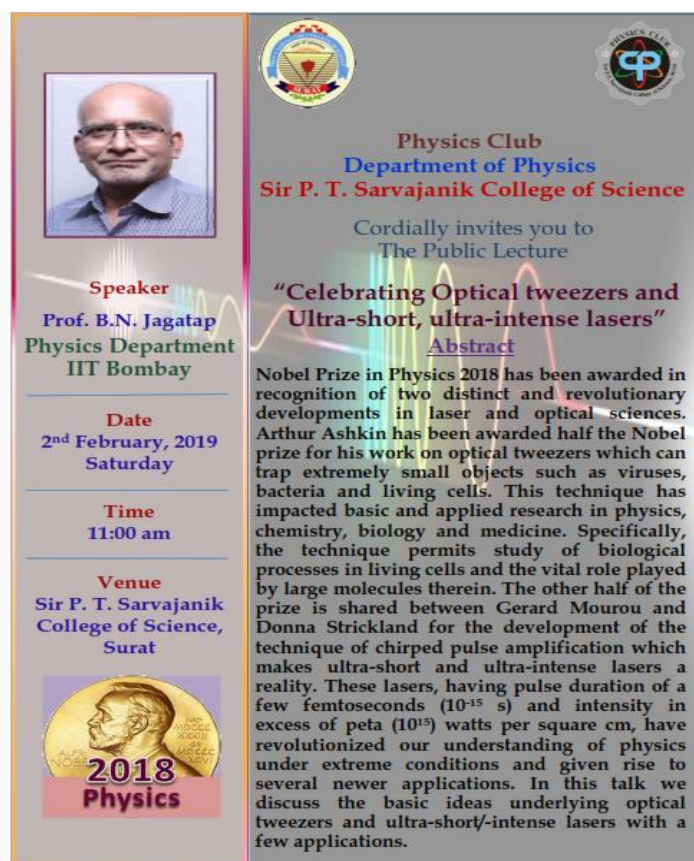


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Physics Club
Department of Physics
Sir P. T. Sarvajani College of Science

Cordially invites you to
The Public Lecture

**“Celebrating Optical tweezers and
Ultra-short, ultra-intense lasers”**

Abstract

Nobel Prize in Physics 2018 has been awarded in recognition of two distinct and revolutionary developments in laser and optical sciences. Arthur Ashkin has been awarded half the Nobel prize for his work on optical tweezers which can trap extremely small objects such as viruses, bacteria and living cells. This technique has impacted basic and applied research in physics, chemistry, biology and medicine. Specifically, the technique permits study of biological processes in living cells and the vital role played by large molecules therein. The other half of the prize is shared between Gerard Mourou and Donna Strickland for the development of the technique of chirped pulse amplification which makes ultra-short and ultra-intense lasers a reality. These lasers, having pulse duration of a few femtoseconds (10^{-15} s) and intensity in excess of peta (10^{15}) watts per square cm, have revolutionized our understanding of physics under extreme conditions and given rise to several newer applications. In this talk we discuss the basic ideas underlying optical tweezers and ultra-short/intense lasers with a few applications.

Speaker
Prof. B.N. Jagtap
Physics Department
IIT Bombay

Date
2nd February, 2019
Saturday

Time
11:00 am

Venue
Sir P. T. Sarvajani
College of Science,
Surat

**2018
Physics**

Brief Report:

There are a few instances when Nobel Prize in Physics is given for the work in the field of Optics and the year 2018 was one of them. Prof. B. N. Jagtap in his talk discussed how the technique of optical tweezer helps to trap the microorganisms, and how the so-called isolated branches to science, Physics, Chemistry and Biology come to a single platform at the micro-level. The other half of the Nobel Prize work was on the technique of producing ultra-short, ultra-intense LASERS. It helps understand the physics of the materials under extreme conditions. The talk was followed by a question-answer session.