

**University of Macau**  
**Faculty of Science and Technology**  
**Institute of Applied Physics and Materials Engineering**

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**Parametric Excitation of Electromechanical Vibrations of CNT and Stimulated Raman Scattering from Graphene**

By

Prof. V.K.Tripathi, Professor, Physics Department, Indian Institute of Technology Delhi

**Date: 6 October 2016 (Thursday)**

**Time: 16:00**

**Venue: E12-G021**

**Abstract**

A carbon nanotube (CNT), standing on a capacitor plate with dc and rf potentials applied between the capacitor plates, is susceptible to parametric excitation of transverse vibrations. These vibrations provide valuable diagnostics for mechanical and electrical properties of CNT. Stimulated Raman scattering of laser in a graphene coated optical waveguide offers information about graphene plasmons. The talk would elaborate the physics of these parametric processes and discuss their implications.

**Biography**

Prof. V. K. Tripathi is a Plasma Physicist from IIT Delhi, India. Born on March 11, 1948 in Piprai (UP) India, he did his Ph.D. from IIT Delhi in 1971. He served on IIT faculty for five years and then moved to University of Maryland where he worked for six years on thermonuclear fusion. In collaboration with Prof. C.S. Liu he developed theories of parametric instabilities in RF heating of tokamak, magnetic mirror and laser produced plasmas. In 1983 he joined IIT Delhi as professor of physics and established a broad based research group on laser driven fusion, laser charged particle acceleration, free electron laser, gyrotron, Terahertz generation, rf heating and surface plasmonics. He published extensively in these areas, completed 15 sponsored research projects and led 35 students to Ph. D. degree. He collaborated with leading research groups at University of Maryland, General Atomic Co., University of Denver, Institute for General Physics, Moscow, National Central University, Taiwan, Max Planck Institute for Quantum Optics, Osaka University and University of Macao. After his retirement in 2013, he is serving IIT Delhi as honorary professor of Physics. Currently he is working on high power laser interaction with nano tubes, nano particles, nano films and graphene. For diverse applications including terahertz radiation generation and proton acceleration. He is a co-author of 3 books, 5 review articles and 330 research papers.

**All are Welcome!**