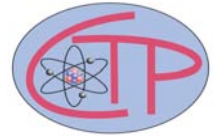




**NEW YORK CITY COLLEGE OF TECHNOLOGY**  
**Physics Department**  
**Center for Theoretical Physics**



# **Quantum Optics, Some Past and Present Trends**

***Presented by:***

**Prof. Mark Hillery**

**Hunter College of CUNY**  
**New York, NY**

**Thursday, April 30 at 12:00 PM**  
**Namm, Room 823**

## **Abstract**

Quantum optics arose with the invention of the laser. Early work focussed on developing a quantum theory of the laser and on better understanding the nature of the quantized electromagnetic field. It was for this latter work that Roy Glauber won the 2005 Nobel Prize in Physics. The fields produced by nonlinear optical devices also received attention, because of their unusual correlation properties. In the 1980's two major areas of study were quantum metrology, using nonclassical states of the electromagnetic field to improve the accuracy of measurements, and micromasers and microlasers, optical devices that are pumped by a single atom at a time. In the 1990's the field split into three parts. Some researchers turned their attention to the study of Bose-Einstein condensates and related phenomena in matter-wave physics. Another group pursued the newly emerging field of quantum information, while a third continued with work on mainstream quantum optics. Today all of these efforts are alive and doing very well, and they have been joined more recently by the study of quantum opto-mechanics. A broad overview of these trends will be presented as well as more detailed discussions of some selected topics.

*Light refreshments will be served.*