TATA INSTITUTE OF FUNDAMENTAL RESEARCH

Homi Bhabha Road, Colaba, Mumbai – 400 005.

DEPARTMENT OF ASTRONOMY & ASTROPHYSICS

Special Astronomy Seminar

July 21, 2010

Speaker : Dr. James Beletic
Director, Astronomy & Civil Space
Teledyne Imaging Sensors, USA

Title : Scientific Imaging Sensors

Day, Date & Time : Thursday, 29 July, 2010 at 14.30 hrs

Venue : Lecture Room (AG-80)

(J. S. Yadav)

Abstract

An imaging system can be simplistically divided into two main parts: (1) optics that collect light and, (2) an instrument that measures the light. Perhaps the most important part of the instrument is the detector that senses the light. The performance of an imaging system is directly a function of the performance of the detector. Thus, it is critical for optimal system design to use the best detectors possible.

This seminar will present a broad overview of the scientific imaging sensors that are used in leading astronomical instrumentation. The detectors that will be discussed include CCDs and CMOS-based imaging sensors that are used for x-ray, ultraviolet, visible and infrared wavelengths. The content of this seminar is targeted toward those who are not detector specialists, but seek a basic understanding of the fundamental physics and architecture of optical and infrared detectors.