

# Challenge Lecture Series

by

**Prof. Amitabha Ghosh**

**Platinum Jubilee Senior Scientist of  
The National Academy of Sciences India &  
Hon. Distinguished Professor**

**Title: "Revisiting Newton's Laws: Possible  
Modification and Amazing Cosmological  
Consequences"**

**Venue: Lecture Hall - 2**



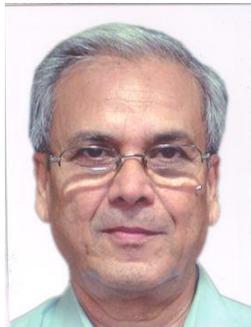
भारतीय प्रौद्योगिकी संस्थान हैदराबाद  
Indian Institute of Technology  
Hyderabad

**Date & Time: 17 October 2012 at 3:30 pm**  
**All Are Welcome!**

## **Abstract of the talk**

Newton's Laws of motion and universal gravitation constitute the foundation of almost all branches of science and engineering. Mostly, these are introduced at the senior levels in the schools and the students practice applying these laws to many problems. Apparently these laws look fine and without any problem. But as one rarely returns to ponder over these laws seriously at senior levels, the serious problems associated with these laws remain unnoticed. This lecture proposes a return to the Newton's Laws of motion and universal gravitation to examine the situation. In the first part of the talk the difficulties with these laws will be discussed and some modifications will be suggested. It will be shown how the difficulties melt away and very profound consequences emerge. In the second part of the talk the modified law will be applied to a number of astrophysical and solar system mechanics problems. It will be very interesting to see how in all cases the proposed extended Newton's laws can resolve a number of unexplained phenomena.

## **Biography of the Speaker**



Amitabha Ghosh received his Bachelor of Engineering and Master of Engineering degrees from Bengal Engineering College, Shibpur, (Calcutta University) and Doctorate degree from Calcutta University in 1969. From 1997 to 2002 he served IIT Kharagpur as the Director. Currently he is a Platinum Jubilee Senior Scientist of the National Academy of Sciences, India, Allahabad and also an Honorary Distinguished Professor at Bengal Engineering & Science University, Shibpur. His research and academic interests are in Basic Mechanics, Kinematics and Dynamics, Advanced Manufacturing and Robotics. He has guided more than 75 M Tech and 18 PhD students and published about 125 research papers. His five books are considered classics and are followed extensively in India and abroad. Professor Ghosh is the Chairman, Research Council of Central Mechanical Engineering Research Institute, Durgapur since 2001 and has chaired the FIST committee of the DST in Engineering Science for 6 years and PAC in Manufacturing Science for 3 years. Professor Ghosh received three Calcutta University Gold Medals for standing First among the students of all branches

of Engineering at both Bachelors' and Masters' examinations. He has also received quite a few other awards including Prof Jai Krishna award from the Indian National Academy of Engineering, Doctor of Science (h.c.) from Bengal Engineering and Science University, Shibpur and was the first to receive the Distinguished Teacher award from IIT Kanpur. He is a Fellow of the Institution of Engineers (India), Indian National Academy of Engineering, New Delhi, Indian Academy of Sciences, Bangalore, Indian National Science Academy, New Delhi and the National Academy of Sciences, India, Allahabad.