TATA INSTITUTE OF FUNDAMENTAL RESEARCH

Homi Bhabha Road, Mumbai-400 005

December 19, 2018

ASET Colloquium

Speaker : **Prof. Avik Bhattacharya** ***(Centre of Studies in Resources Engineering (CSRE), IIT Bombay)***

Title : **Radar Remote Sensing: Perspectives and Applications**

Date &Time : **Friday 28 December 2018 at 16:00 hrs.**

Venue : **Lecture Theater (AG-66)**

Abstract :

Synthetic aperture radar (SAR) image the Earth in the microwave region of the electromagnetic spectrum. The SAR antenna transmits as well as receives the backscattered energy from the Earth surface. SAR systems have drawn considerable attention for Earth observation due to its imaging ability in all weather conditions. The interaction of radar signals depends on sensor parameters (viz., frequency, incidence angle, and polarization) as well as target properties (viz., geometry and permittivity). Given the advantages associated with radar imaging, it is used to monitor dynamic processes on the Earth surface in a timely, reliable and global manner.

The dynamic changes in vegetative growth and moisture levels of crop fields can be estimated using radar sensors. Radar images are widely used for degradation and deforestation mapping as well as height and biomass estimation of forests. The properties of radar scattering utilizing polarization information are used in classifying complex urban areas while detecting changes due to urban sprawl. The applications of SAR imaging is not only limited to ecosystems but is also widely used for cryosphere, maritime and disaster monitoring applications. Changes in snow cover and glacier movements can be tracked using SAR data. The timely and accurate spatiotemporal information from SAR data helps in managing natural resources thereby accelerating the decision process for policymakers.

About the Speaker:

Dr. Avik Bhattacharya received M.Sc. in Mathematics from IIT Kharagpur and Ph.D. in remote sensing image processing and analysis from Telecom ParisTech, Paris. He received the Natural Sciences and Engineering Research Council of Canada visiting scientist fellowship at the Canadian national laboratories, from 2008 to 2011. He was a Canadian Government Research Fellow at the Canadian Centre for Remote Sensing (CCRS) in Ottawa, Canada. He is currently an Associate Professor at the Centre of Studies in Resources Engineering, IIT Bombay, where he is currently leading the Microwave Remote Sensing Lab. Dr. Bhattacharya is the Editor-in-Chief of IEEE Geoscience and Remote Sensing Letters GRSL). He was Guest Editor of a number of prestigious IEEE Journals and Special Issues.He is the Founding Chairperson of the IEEE Geoscience and Remote Sensing Society (GRSS) of the Bombay chapter.

Dr. Satyanarayana Bheesette
(Coordinator, ASET Forum)