



IITM's 'Prof. R. Ananthakrishnan' Colloquium (43rd)



Late Prof. R. Ananthakrishnan

(Ex-Director and Honorary Fellow of IITM, Pune started his research career as a research scholar in the field of light scattering under the guidance of noble laureate Prof. C.V. Raman and was awarded D.Sc. in 1937 from University of Madras. Then he

joined IMD and occupied several

positions up to DDG and then he worked as Director IITM during 1968-1971. He was awarded Padmashree by President of India in 1969 and C.V. Raman Centenary Medal in 1988. He was elected as an INSA Fellow in 1961 and was also member of many learned and professional societies like (Indian Academy of Sciences, Maharashtra Academy of Sciences). He was associated with many technical committees and working groups of WMO Geneva. He was editor of reputed national and international journals in Meteorology.

Prof. Ananthakrishnan was deeply associated in organizing and teaching Msc./M.Tech. Courses in Meteorology at University of Cochin and University of Pune. Under his able guidance 12 persons were awarded Ph.D.

Research contribution of Prof. R. Ananthakrishnan covers a wide range of topics viz. Light scattering and Raman Effect, Solar Physics and Meteor Astronomy and Meteorology. In the field Meteorology his work covers: Aerology, Dynamics, Thermodynamics, monsoon circulation, Tracks of storms and depressions. Atmospheric pressure and oscillations, Indian rainfall and features associated with onset of southwest monsoon and identification of errors in upper air data. To meet defense needs he organized the publications entitled 'Climatology of Himalayas, Tibet and adjoining areas. There are 110 national/international (research papers/technical contributions) papers to his credit and a book entitled 'An Introduction to Meteorology'. This textbook is found to be extremely useful to all the new comers in the field of meteorology. Prof. R. Ananthakrishnan pursued his research and guided researchers in atmospheric science even after his retirement as an honorary fellow of IITM till his last days.



Dr. Bipin Kumar

Title of the Talk: "**Direct Numerical Simulation (DNS) to understand droplet and aerosol dynamics**"

Abstract: The complexity of the cloud system, due to the wide range of scales, makes it challenging to study cloud phenomena occurring at the micro-scale. Generally, the small-scale processes involved in modelling cloud phenomena, such as droplet and aerosol dynamics and turbulent properties at the Kolmogorov scale, are not fully captured by numerical models. In addition, the cloud's large-scale radiative characteristics and effect on the climate system can be affected by entrainment and mixing, which can significantly impact the cloud's microphysical composition, such as the number, density, and size spectra of cloud droplets. Direct numerical simulation (DNS), a computationally expensive method, is the best way to investigate these processes. The relevance of DNS in studying droplet dynamics, aerosol activation, and turbulent characteristics will be discussed in this talk. It will also cover a discussion on a new technique called 'Scaled-up DNS' and the possibility of improving LES grids, as well as a few techniques for analyzing turbulent characteristics using DNS data.

Date: 02 February, 2023, 1630hrs

<https://youtube.com/live/a6EqboN0eqU?feature=share>