



भौतिक अनुसंधान प्रयोगशाला, अहमदाबाद

Physical Research Laboratory, Ahmedabad

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**Third Dr. Bibha Chowdhuri
Memorial Lecture**

on

**Tuesday, 07 March 2023 @
11:30 hrs**



Dr. Bibha Chowdhuri (1913-1991)

**“Dynamics of
small particles
in flow”**

Dr. Rama Govindarajan

Professor and Dean Academic, International Centre for Theoretical Sciences, Tata Institute of Fundamental Research (ICTS-TIFR), Bengaluru



Venue: K R Ramanathan Auditorium, Main Campus, PRL



Third Dr. Bibha Chowdhuri Memorial Lecture

Title: “Dynamics of small particles in flow”

Speaker: Dr. Rama Govindarajan,

**Professor and Dean Academic, International Centre for Theoretical Sciences,
Tata Institute of Fundamental Research (ICTS-TIFR), Bengaluru, India.**

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Abstract

Whether it is plankton in the ocean, dust-storms or water droplets in clouds, small particles in flow display a range of interesting behaviour, and in particular show a propensity to clumping. In this talk we will discuss how we may approach this problem, and the multiple approximations involved. And how a departure from sphericity affects interactions between the particles, and modifies clumping via the suppression of an instability.

The Speaker

Prof. Rama Govindarajan's research area is fluid dynamics (instabilities, particulate flows and flows with phase change). After a PhD in Aerospace Engineering from the Indian Institute of Science, and a postdoctoral term at Caltech, Govindarajan was on the faculty at the Jawaharlal Nehru Centre for Advanced Scientific Research and TIFR Hyderabad before moving to the International Centre for Theoretical Sciences (ICTS), Bengaluru. She is a Fellow of all three Indian Science Academies and of the American Physical Society, and has won the Bhatnagar Prize for Engineering.



Dr. Bibha Chowdhuri Memorial Lecture



Dr. Bibha Chowdhuri (1913-1991) was the first women particle physicist of India. During 1938-42, she worked with Prof. D.M. Bose and made a pathbreaking study of identifying a cosmic particle having mass close to 200 times that of the electron by exposing photographic emulsion at high altitudes. They published four papers in Nature. These works form the basis of the more precise determination of the mass of pi-meson by Prof. C.F. Powell for which he was awarded the Nobel Prize in 1950. Later, Prof. Powell acknowledged Bose and Chowdhuri's pioneering contribution in his book.

She joined the cosmic ray research laboratory of P.M.S. Blackett (Nobel Prize winner in 1948) at the University of Manchester in 1945, to pursue a Ph.D. Degree and worked on Extensive Air Showers in cosmic rays and obtained a Ph.D. in 1952. From Manchester she moved to Tata Institute of Fundamental Research (TIFR) during 1949-1953. During 1954-59 she performed research work at Ecole Polytechnique, Paris, University of Michigan and M.I.T in the US. She joined Physical Research Laboratory (PRL) in 1959 as CSIR SRF and in 1961 as a Pool Officer for the study of Cosmic Ray Air Showers and worked at the Kodaikanal observatory-

She joined PRL as a Fellow in 1966. She worked on detecting high energy muons associated with extensive air showers at Kolar Gold Field in collaboration with scientists at TIFR. She left PRL 1976 and continued to work in Kolkata in collaboration with scientists at SINP, VECC, University of Calcutta and IACS.

Although Dr. Bibha Chowdhuri has made pioneering contributions in studies of cosmic rays, she was largely forgotten until recently. A book titled 'A jewel unearthed: Bibha Chowdhuri' by two leading science historians, Rajinder Singh and Suprakash C Roy brought her work in the limelight. In 2019 IAU has named a white yellow dwarf star as Bibha in honour of Dr. Bibha Chowdhuri.

Since Dr. Bibha Chowdhuri spent most of her work life at PRL it is only fitting that PRL organises an annual memorial lecture in her name. This memorial lecture will be an occasion to celebrate eminent women researchers in the field of Science, Technology, or Social Science.

