भौतिक अनुसंधान प्रयोगशाला, अहमदाबाद

Physical Research Laboratory, Ahmedabad

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PRL Ka Amrut Vyakhyaan-04

on

Wednesday, 25 August 2021 @ 16:00 hrs. IST

"Our immunity and emerging diseases"

Prof. Chandrima Shaha

President, Indian National Science Academy, New Delhi

https://youtu.be/FBH_loaD2Ag

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Title: "Our immunity and emerging diseases"

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Abstract

Bacterial, viral and fungal infections continue to be major challenges across the world. Our immune system protects us against the invading pathogens and failure of the immune response cause diseases. During the course of evolution, the constant tussle between the human hosts and the pathogens shaped the immune system that we have today. The understanding of immunity forms the basis of designing of vaccines and drugs and lessons from pandemics of the past emphasises the crucial role that vaccines play in our fight against diseases. Evolutionary events unfurling in recent times shows how the SARS-CoV-2 changes to become a better pathogen capable of infecting with greater efficiency. The clues to a successful defense against COVID-19 lies in the generation of knowledge on the biology of the SARS-Cov-2 and understanding the nature of the COVID-19, as is evident from the remarkable progress made by science and technology that helped us to mitigate our plight during the current pandemic.

The Speaker

Prof. Chandrima Shaha, currently, the President of the Indian National Science Academy, is former Director and former Professor of Eminence of the National Institute of Immunology, New Delhi. Prof. Shaha served as Member of Task Forces for several National and International Committees. She has received many awards in recognition of her achievements including the JC Bose National Fellowship, the Ranbaxy award for basic sciences, the INSA Shanti Swarup Bhatnagar medal, Darshan Ranganathan memorial award and the Om Prakash Bhasin award. She is elected Fellow of all the three National Academies of Sciences and of the World Academy of Sciences, Trieste. She served as Council member of all three Academies and was Vice-President of INSA. Her research has contributed significantly towards the understanding of cellular defense mechanisms and modalities of cell death in multicellular and unicellular model organisms.

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About PRL

The Physical Research Laboratory (PRL), known as the “cradle of space science” in India, is one of the premier research institutes founded in 1947 by Prof. Vikram Sarabhai, a renowned Cosmic Ray Scientist, a great visionary and institution builder. PRL played a seminal role in producing a highly motivated cadre of space scientists and the technologists of highest international repute. The first scientific rocket launched from Thumba on 21st November-1963 and many other rockets launched thereafter contained payloads developed at PRL. Dr. Sarabhai initiated many of these scientific and technical activities at PRL which eventually led to the formation of the Indian Space Research Organization (ISRO). Therefore, PRL is known as the “cradle of space science” in India. Further, the research in the area of Plasma Physics expanded to the formation of the Institute of Plasma Research (IPR).

As an institution PRL is unique in that it conducts fundamental research in a wide range of research areas from the Earth to the cosmos, and comprising Astronomy and Astrophysics; Solar Physics; Space and Atmospheric Sciences; Theoretical Physics; Geosciences; Atomic, Molecular and Optical Physics, Astrochemistry; and Planetary Sciences and Space Exploration. PRL is one of the rare research institutes of international repute wherein research in such diverse fields of sciences is carried out using several state-of-the-art experimental facilities that exist under one umbrella.

Along with the ongoing research, several new initiatives have been taken up during the last few years. The Multi-Application Solar Telescope (MAST) at Udaipur Solar Observatory has been operationalized. PRL initiated scientific programmes in frontier areas of research, which include a search for exo-planets, laboratory studies of interstellar grains, laboratory synthesis of cold astromolecules and experimental studies in the field of quantum optics. PRL is also developing several scientific payloads as a part of ISRO’s larger vision and contributing to roadmap for competitive scientific exploration of the solar system and beyond. In particular, PRL has been contributing significantly not only in building instruments for space missions, such as Chandrayaan-1, Chandrayaan-2, AstroSat and upcoming Aditya-L1, Chandrayaan-3 and planetary and space missions, but also by bringing out new and insightful science results.

PRL contributes to several national and international research programmes and to human resource development through its Doctoral and Post-Doctoral Programmes, capacity building programmes, such as UN Course on Space Science, and science and engineering internship programmes. PRL contributes significantly to society through its Outreach Programmes by periodically organizing science exhibitions and Open Houses, planned visits of students of various school and college to PRL, and popular talks at various institutions to not only share the excitements of the advancements of contemporary scientific findings but also to encourage students to take up sciences as their research career.