



भौतिक अनुसंधान प्रयोगशाला, अहमदाबाद Physical Research Laboratory, Ahmedabad

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Dr. Arvind Bhatnagar Memorial Lecture-01

(PRL ka Amrut Vyakhyaan 16)

Wednesday, 17 November 2021

@ [16:00 hrs. \(IST\)](#)



**“The Sun's Magnetic Field and
Global Climate Change”**

Prof. Sami K. Solanki

Max Planck Institute for Solar System Research,
MPS, Göttingen, Germany.



https://youtu.be/wOIf4oKuJ_k

PRL@75



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Dr. Arvind Bhatnagar Memorial Lecture-01

Title: “The Sun's Magnetic Field and Global Climate Change”

Speaker: Prof. Sami K. Solanki

Affiliation: Max Planck Institute for Solar System Research, MPS, Göttingen, Germany.

On Wednesday, 17 November 2021

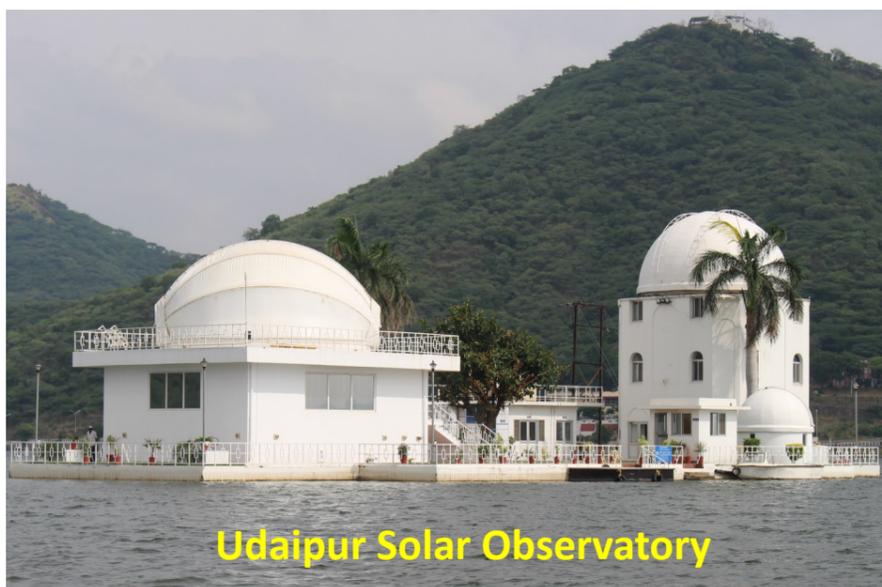
Abstract

The Sun is a restless star. It shows a wide variety of transient or active phenomena, such as dark sunspots, the continuously changing hot corona, energetic flares and immense coronal mass ejections, together with the associated output of energetic radiation and particles. The single quantity that is responsible for the continuing unrest of the Sun is its tangled and dynamic magnetic field. It produces these and many more fascinating phenomena, including variations in the Sun's radiative output or irradiance, which has been invoked as a source of solar influence on the Earth's climate. After an introduction to the Sun and its magnetic field, a short history of solar activity will be given and how that relates to the changing climate on Earth. Finally, the question is considered to which extent the Sun is responsible for the global warming seen in the last century.

The Speaker

Prof. Sami K. Solanki is a solar physicist and stellar astronomer. He is the Director of the Max-Planck-Institute for Solar System Research (MPS) in Germany. He did his PhD at the Swiss Federal Institute of Technology (ETH) in Zürich, Switzerland. He has been awarded with Honorary and distinguished Professorships by the ETH, the Technical University of Braunschweig and Kyung Hee University in Korea, and an Honorary Doctorate from the University of Oulu, Finland. He has also received a number of prizes and awards, such as an Advanced Grant of the European Research Council (ERC), the Julius Bartels medal of the European Geosciences Union (EGU), or the Distinguished Scientist Award of the Scientific Committee for Solar Terrestrial Physics (SCOSTEP). He has published over 500 refereed scientific papers, with over 36000 citations and an h-index or Hirsh-index of 98 (according to Google Scholar). He is the founder and spokesperson of the International Max Planck Research School on Solar System Science, with over 200 successful graduates (the majority of whom continue working in science, as professors or have other permanent positions). He also founded and is Editor-in-Chief of the refereed electronic journal “Living Reviews in Solar Physics”, with an impact factor of 20. He leads the SUNRISE Mission of the German Space Agency, DLR, NASA and the Spanish Space Agency, and is the principal investigator of the SO/PHI instrument on the Solar Orbiter space mission, as well as being Co-I of a number of further space instruments.

About USO and Dr. Arvind Bhatnagar Memorial Lecture



The Udaipur Solar Observatory (USO) was founded in 1975 by the visionary scientist Dr. Arvind Bhatnagar. This observatory located on a small island in the lake Fatehsagar, has proved the signifi-

cance of a lake-site for recording solar images. Since becoming a part of the Physical Research Laboratory (PRL) in 1981, USO has emerged as a leading centre for Solar Physics in the country and the world. The last 40 years have witnessed a phenomenal transformation of the facility. In 1995, USO-PRL became a part of the prestigious Global Oscillation Network Group (GONG), a flagship synoptic program at the National Solar Observatory, USA, to study the internal structure of the Sun. In 2015, the 50-cm Multi-Application Solar Telescope (MAST) was installed at the island site of USO-PRL, making it a state-of-the-art facility to study the Sun with a very high spatial and temporal resolution. In 2018, e-Callisto, a radio spectrometer was installed to study solar radio bursts.

The USO-PRL is organizing "Dr. Arvind Bhatnagar Memorial Lecture" dedicated to the memory of Late Dr. Arvind Bhatnagar, the founder of USO, and his contributions to solar physics research in India. The Dr. Arvind Bhatnagar Memorial Lecture is aimed at commemorating the rich history and growth of USO-PRL. This lecture will be organised every year in the month of November, close to the birth-date of Dr. Bhatnagar, i.e., 19th November.

The Lecture would be delivered by a senior solar physicist from India or abroad having expertise in theory, observations, or instrumentation development, which has paved the way for the future of Solar Physics in the 21st century.

Dr. Arvind Bhatnagar Memorial Lecture has been initiated in 2021, the Platinum Jubilee Year of PRL, and therefore this year it is arranged as one of the special lectures of "PRL Ka Amrut Vyakhyaan" series, which is being organised to celebrate 75 years of foundation of PRL and also of India's independence.