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22 **APRIL** **2022** | **05:10 PM (IST)**

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Online Colloquium Series ‘Nobel Talk’

Department of Physics, BITS Pilani - Pilani Campus, India



Prof. Sujan Sengupta

Indian Institute of Astrophysics, Bangalore

Title: Exploration of Exoplanets: Search for Extraterrestrial Life.



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Abstract: As soon as Copernicus established the fact that the Earth and the other planets are orbiting around the Sun, many scholars realized that the billions of lights in the night sky are like the Sun and they should also have planets and planetary systems similar to the Solar planets. The speculation that some of these planets must be similar to the Earth and the eternal curiosity of mankind “Is anybody out there?” culminated as a result of such a realization. The first false alarm of an exoplanet was reported by the astronomers of the Madras Observatory in 1855. Ultimately a Jupiter sized planet orbiting a Sun-like star was discovered in 1995 by Michel Mayor and Didier Queloz of Geneva Observatory. Soon, astronomers discovered many exoplanets orbiting stars of various kinds and the diversity in the physical properties of these planets revolutionized our concept of planets. Hence the Nobel Committee recognized the discovery of the first exoplanet around a solar type star 51 Pegasi by awarding the 2019 Nobel Prize in Physics to Mayor and Queloz. Obviously, this discovery rekindled the quest for habitable planets and hence the presence of extraterrestrial life. On the other hand, six decades of hectic search by astronomers has not provided any techno-signature of alien civilization. In this talk I shall describe the systematic scientific search for Earth-like planets that may show the signature of life. In this context I shall also discuss the rare astronomical and geological coincidences that enabled life on the earth to survive and evolve.

Bio: Dr. Sujan Sengupta is a Professor and chair of the theoretical astrophysics group at Indian Institute of Astrophysics, a premier research institute of the country in Bangalore under the Ministry of Science and Technology, Govt. of India. He was born in the state of West Bengal of India. After completing his master on Mathematics from Burdwan University, West Bengal in 1990, he joined Indian Institute of Astrophysics at Bangalore as a CSIR Research Fellow. He obtained his Ph.D. degree in 1996 on Astrophysics. After a brief period of postdoctoral research at Vanderbilt University, Nashville, USA, with a NASA fellowship, he returned to India and joined the same institute as a faculty in 2002. His research activities include theory and observation of exoplanets, exomoons, astrobiology and brown dwarfs- the missing link between stars and planets. Prof. Sujan Sengupta was one of the signatories along with the late Stephen Hawking, Prof. Frank Drake, Prof. Kip Thorne et al. of the Breakthrough Initiative project established by Yuri Milner, that searches for extra-terrestrial intelligence. He is an alumni of the Kavli Frontiers of Sciences, US National Academy of Sciences and a member of the International Astronomical Union. Besides publishing several research papers in the top most international peer reviewed journals, Prof. Sengupta has also authored a popular book entitled “Worlds Beyond Our Own- The search for Habitable Planets” published by Springer International.



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