भौतिक अनुसंधान प्रयोगशाला, अहमदाबाद

Physical Research Laboratory, Ahmedabad

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82_PRL Ka Amrut Vyakhyaan

Wednesday, 19 July 2023

@ 04:00 PM (IST)

"Human Impact on Global Climate Change Over the Past Two Centuries: Use of Isotope-Tracing Techniques"

Prof. Mark Baskaran

Professor & Chair, Department of Environmental Science and Geology, Wayne State University, Detroit, MI

Venue: K R Ramanathan Auditorium, Main Campus, PRL, Ahmedabad

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Title: "Human Impact on Global Climate Change Over the Past Two Centuries: Use of Isotope-Tracing Techniques"

Speaker: Prof. Mark Baskaran

Professor & Chair, Department of Environmental Science and Geology,

Wayne State University, Detroit, MI

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Abstract

"The human impact on global climate change over the past two centuries is unprecedented. An incredible growth of population, from 1.5 billion in 1900 to 7.9 billion today has led to an increase in energy consumption by more than 1000% over ~70 years to power the development. Never in the history of the Earth has such a drastic increase in the atmospheric CO_2, from 296 ppm in 1900 to 423 ppm in 2023, took place; it is attributed to energy extraction from non-renewable resources (e.g., fossil fuel) contributing ~85% of total energy consumption. The 'science of the changing environment' is at the forefront of human endeavor and a significant (and increasing) fraction of the global GDP is currently being spent on addressing this science (e.g., increasing spatial extent of harmful algal blooms, ocean acidification, ever increasing number of micro-plastics in fresh and saltwater systems, weather-related catastrophic events, etc). Isotopes of key chemical elements have been widely utilized to identify and quantify recent environmental changes. In this talk, a set of case studies, illustrating global environmental changes in different regions of global oceans will be presented."

The Speaker

Prof. Mark Baskaran hails from Watrap, the birthplace of late Prof. K.S. Krishnan in Tamilnadu. He did his M.Sc. (Physics, 1979) from Madurai-Kamaraj University and Ph.D. from the Physical Research Laboratory (Gujarat University, 1985). He joined the University of Alaska (Fairbanks, Alaska) as a postdoc in 1987, and moved to Texas A&M University at Galveston in 1988. He joined Wayne State University (Detroit, MI, USA) in 1999, got his tenure in 2004, and became a tenured full professor in 2007.

Prof. Mark Baskaran is an internationally recognized scholar in the field of Environmental Science and Geochemistry whose scholarship focuses on applications of isotopes as tracers and chronometers in environmental subsystems. He has authored over 160 journal articles, edited two-volume handbook (Handbook of Environmental Isotope Geochemistry, 2011), and a monograph (Radon: A Tracer for Geological, Geophysical and Geochemical Studies, 2016). His work has generated over 10,000 citations and an impressive h-index of 60.

He is the recipient of the WSU Board of Governors (BOG) Distinguished Faculty Fellow Award (2010-2011), the BOG Faculty Recognition Award (2013), Distinguished Graduate Mentor award, and the Senior Fulbright Scholar Award (2015). He was elected to the American Geophysical Union Honors and Recognition Committee (2022) and WSU's Academy of Scholars (2021) - a lifetime appointment. He served as the inaugural Chair (2017-2021) of the AGU's Devendra Lal Memorial Medal Selection Committee. He also served as a member of the U.S. National Fulbright Screening Committee (2019-2021).

He has given over sixty invited plenary/keynote/seminars at national / international conferences/workshops. He was a Distinguished Visiting Professor at East China Normal University, Shanghai, China. He served as a consultant for IAEA-Vienna & Monaco, U.S. Geological Survey, and Sandia National Laboratory. Since 2018, he is serving as the Chair of the Department of Environmental Science and Geology, at Wayne State University.