



INDIAN ACADEMY OF SCIENCES

91ST

ANNUAL MEETING

14 - 16 November 2025 | Venue: Coliseum, IISER Tirupati, Tirupati



Host

Indian Institute of Science Education and Research Tirupati



In association with

Sri Venkateswara University, Tirupati,
Indian Institute of Technology Tirupati and
National Atmospheric Research Laboratory, Tirupati

PUBLIC LECTURE

Friday 14th November 2025, 11:45 AM -12:30 PM

Chairperson: **Raghavan Varadarajan**, IISc, Bengaluru



Shivkumar Kalyanaraman
ANRF, New Delhi

ANRF AI for science and engineering

ANRF Mission on AI for Science and Engineering (AI-SE) aims to accelerate the journey from deep science to deep tech by building a composable stack of scientific AI models, datasets, and workflows that can be combined like modular components. The talk explores how domain-centric neural operators, hybrid AI-HPC methods, multimodal scientific foundation models, and large-scale digital twins can unlock accelerated discovery in vast combinatorial spaces spanning materials, molecules, climate systems, biology, and engineered structures. A core theme is the shift from isolated, single-task models to interoperable, composable model ecosystems that enable AI agents to autonomously navigate design spaces and propose high-value candidates at machine speed.

The talk outlines how traditional scientific processes can be reimaged through tightly integrated AI pipelines, and how India can build the collaborative, cross-institutional data / modelling infrastructure needed for national-scale scientific acceleration.

About the Speaker:

Shiv has been appointed by Hon'ble Prime Minister of India as CEO, Anusandhan National Research Foundation. He was previously CTO, Energy Industry, Asia at Microsoft. Previously he was Executive General Manager of Growth Offerings at GE Power Conversion responsible for new Line of Business development in e-Mobility, Commercial & Industrial Solar and digital/AI innovations. Earlier he was at IBM Research - India, and the Chief Scientist of IBM Research - Australia. Before IBM, he was a tenured Full Professor at Rensselaer Polytechnic Institute in Troy, NY, USA. Shiv has degrees from IIT, Madras (B.Tech, CS), Ohio State University (MS, PhD) and RPI (Executive MBA). Shiv is a Distinguished Alumnus Awardee of IIT Madras (2021) & Ohio State University (2021), Fellow of the IEEE (2010), Fellow of Indian National Academy of Engineering (2015), ACM Distinguished Scientist (2010), Microsoft Gold Club (2024), MIT Technology Review TR100 Young Innovator (1999).

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