



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

Saturday 15th November 2025, 06:00-07:00 PM

Chairperson: Raghavan Varadarajan, IISc, Bengaluru



Vijay Chandru
IISc, Bengaluru

From human-engineered intelligence to re-engineered biology: A journey

Historians of science will note that the last 50 years have marked two interwoven timelines marking great progress in both information and life sciences and their remarkable crossings. The idea of using variational calculus to solve problems of logical inference was anticipated by Gottfried Wilhelm Leibniz (the last universal genius) who posited in the late 17th century that *Characteristica Universalis* and *Calculus Ratiocinator* represent two intertwined concepts that reflected his vision for a universal framework for reasoning and computation. These ideas gathered great momentum in the late 20th and early 21st centuries, with the inexorable, exponential Moore's law of computer engineering, racing us to an age of intelligent machines. In this period, the life sciences too saw exquisite development of instrumentation and techniques that accelerated understanding of cells, genes, chemical processes and information flows moving the science from the descriptive towards grand ideas about life, organisation and complexity. This talk will describe the speaker's journey through these timelines and his attempts to thread the crossings with translational intent.

About the Speaker:

Vijay Chandru is a Visiting Faculty in the Department of Bioengineering at the Indian Institute of Science (IISc), Bengaluru. An academic and entrepreneur, he earned his Ph.D. in the mathematics of decision sciences from MIT in 1982. He has served on the faculty of Purdue University and the Indian Institute of Science, conducting research in computational mathematics, optimization, logic, and biology. A Fellow of the Indian Academy of Sciences, he is also a founder of Strand Life Sciences, a pioneer in genomics-based precision medicine in India. His many recognitions include the Hari Om Trust Award (UGC), the INFORMS President's Medal, and the World Economic Forum's Technology Pioneer distinction.

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