



Indian Institute of Technology Kanpur

INSTITUTE LECTURE SERIES

January 30, 2023 (Monday) | 6.00 pm |

Speaker: Professor Rao S. Govindaraju

Talk Title: Assessing Uncertainty in Hydrologic Applications

About the Speaker



Rao S. Govindaraju is the Bowen Engineering Head and the Christopher B. and Susan S. Burke Professor in the School of Civil Engineering at Purdue University. He earned his PhD in civil engineering from the University of California, Davis, in 1989. His primary areas of research include surface and subsurface hydrology, contaminant transport, watershed hydrology, and climatic influences. He is interested in developing algorithms for analyzing and learning from hydrologic data. He specializes in problems dealing with uncertainty and spatial variability. His research work has been supported by various agencies such as NSF, EPA, DOD, and DOE. Professor Rao has chaired national level committees, and served on the editorial boards of several journals. He is Satish Dhawan IoE Visiting Chair Professor, Department of Civil Engineering, IISc Bangalore.

Abstract of the Talk

Mathematical models are powerful tools and find very wide applications in almost all disciplines. Even the best models only mimic real-world systems, and thus incur uncertainties from multiple sources. For instance, measurement uncertainties exist because of errors in measurements of state variables, while structural uncertainties result from errors in the mathematical representation of actual processes. Further, parametric uncertainties arise from both measurement and structural uncertainties, and because of limited information in the available data in many instances. Uncertainty quantification in hydrologic models poses several challenges including (i) sparse, heterogeneous and high-dimensional data, (ii) lack of good algorithms for contending with uncertainties, and (iii) inability to separate the various forms of uncertainty through standard calibration exercises. Dr. Govindaraju will share his experiences from some collaborative efforts at assessing uncertainty and limits of predictability in hydrologic applications.

 **RM-101 (Rajeev Motwani Building)**

All are cordially invited to attend

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