



**RAMAIAH
UNIVERSITY
OF APPLIED SCIENCES**

Report on

**Distinguished Lecture Series (Online) by
Professor Arunasalam Rahunanthan**

***“A Comparison of Markov Chain Monte Carlo Methods
for Subsurface Characterization”***

Organized by: Directorate of Research and ICPM

Ramaiah University of Applied Sciences,

Date: 05 August 2020

Venue: Online

Report on Distinguished Guest Lecture Series (Online) by Professor Arunasalam Rahunanthan

“A Comparison of Markov Chain Monte Carlo Methods for Subsurface Characterization”

Summary:

Distinguished Lecture entitled “*A Comparison of Markov Chain Monte Carlo Methods for Subsurface Characterization*” has been presented by Prof. Arunasalam Rahunanthan from Central State University, Ohio, USA as a part of Computational Sciences CoE Seminar at Ramaiah University of Applied Sciences (RUAS).

The Distinguished Lecture has engaged Participants across the country along with RUAS Internal Faculty Members and Ph.D. Scholars.

Event Description:

Dr. Arunasalam Rahunanthan, Associate Professor of Mathematics, Chair of Mathematics and Computer Science, Central State University, Ohio, USA, has presented online Distinguished Lectures on the topic entitled “A Comparison of Markov Chain Monte Carlo Methods for Subsurface Characterization” at RUAS on 05 August 2020.

The Distinguished Lectures Series has been initiated at RUAS in 2018 and has become since then a place for renowned academics, scholars, qualified experts and scientists to share their knowledge and debate on topics of current relevance. Distinguished Lectures Series delivered by outstanding scientists and academicians aims to:

- Create a scientifically advanced and challenging context for academic work and development of knowledge on topics of interest and importance to global scientific community
- Serve as one of the means to stay aware of the most recent scientific and technological developments,
- Provide benefits to professional peer networking to all Participants.

(Organizers)

Dr. Arunasalam Rahunanthan, Associate Professor of Mathematics, Chair of Mathematics and Computer Science, Central State University, Ohio, USA

Dr. S. S. Sritharan, Vice Chancellor, RUAS

Dr. G. R. Kadambi, Pro Vice Chancellor – Research, RUAS

Dr. Sharath Kumar, Director – Research, RUAS

Ms. Lyubov Kulikovich, Deputy-Director, ICPM

Objectives:

1. To characterize the surface using partial fractional flow data at monitoring wells

Budget: Event is Free of Cost for All Participants

Program and Speakers

Sl. No.	Resource Person	Title of the Distinguished Lecture	Date and Time
1	Dr. Arunasalam Rahunanthan Associate Professor of Mathematics, Chair of Mathematics and Computer Science, Central State University, Ohio, USA	<i>“A Comparison of Markov Chain Monte Carlo Methods for Subsurface Characterization”</i>	05 August 2020 (04.00 am IST)

Summary of the Event

Professor Arunasalam Rahunanthan, Associate Professor of Mathematics, Chair of Mathematics and Computer Science, Central State University, Ohio, USA, has presented online Distinguished Lectures on the topic entitled “A Comparison of Markov Chain Monte Carlo Methods for Subsurface Characterization” at RUAS on 05 August 2020.

Distinguished Guest Lecture Series (Online) has been organized and moderated by RUAS. RUAS Key Participants attended the event were: Dr. S. S. Sritharan, Vice Chancellor, Dr. G. R. Kadambi, Pro Vice Chancellor – Research, Dr. Sharath Kumar, Director – Research, and Ms. Lyubov Kulikovich, Deputy-Director, ICPM. Speaker was Professor Arunasalam Rahunanthan. The event has been made available free of cost to all Participants.

- **Programme:**

Distinguished Guest Lecture Series began with the introduction of the Speaker by Dr. S. S. Sritharan, Vice Chancellor, RUAS. Professor Arunasalam Rahunanthan went ahead with his talk. Afterwards, there was a Q&A session, and the event has been concluded.

Professor Arunasalam Rahunathan presented the review and motivation for work in characterization of surface. The importance of the subsurface characterization is in the need to make decisions regarding economic, environmental or health and safety concerns. For instance, in oil recovery knowing the properties of an underground volume helps in forecasting the output in oil production. It is also important in terms of, for example, accidental contamination like spills to consider dynamics of contaminant concentration in groundwater. There are many more applications of the knowledge. It is one of the most challenging task to characterize the subsurface reliably. Prof. Arunasalam Rahunathan has presented the characterization of subsurface using partial fractional flow data at monitoring wells using multiple Markov Chain Monte Carlo Method chains with an analysis of the convergence of the chains.

Therefore, the objective to characterize the surface using partial fractional flow data at monitoring wells has been successfully achieved. The Distinguished Lectures have engaged around 100 participants across country along with RUAS Internal Faculty Members and Ph.D. Scholars.

Conclusion and Outcomes

- **Programme outputs:**

During the Distinguished Guest Lecture Series, the objective to characterize the surface using partial fractional flow data at monitoring wells has been achieved successfully. The Distinguished Lectures have engaged around 100 Participants across the country along with RUAS Internal Faculty Members and Ph.D. Scholars.

Annexures

Link to the Attendee Report:

https://msruas-my.sharepoint.com/:x:/g/personal/dd_icpm_msruas_ac_in/EeYyrP9Z7sdBjb6TBfUn0gwBtvnlZVdszMpPJFPHZnv8GQ?e=ZKZpl2

Link to the Recording:

<https://web.microsoftstream.com/video/c8f81232-d0d6-4224-a338-f579e5d5e6e6>

Link to Q&A Report:

https://msruas-my.sharepoint.com/:x:/g/personal/dd_icpm_msruas_ac_in/EcHzqe3ZKbtHm-WIJ0yM9m0Bpz-z_lz8oY8uwrRZIFNriw?e=6Zkqu7