

Rien van Genuchten Conference

Challenges and Opportunities in Porous Media Multiphase Flow and Contaminant Transport Research

International Conference in honor of Rien van Genuchten on the occasion of his 80th birthday

May 7-9, 2025
Rio de Janeiro, Brazil

HOSTING



ORGANIZATION



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Introduction

Event:

Challenges and Opportunities in Porous Media Multiphase Flow and Contaminant Transport Research - International Conference in honor of Rien van Genuchten on the occasion of his 80th birthday

Location:

Auditorium CT2 of COPPETEC, R. Muniz de Aragão, 360, Block 1, Ilha do Fundão, University City, Rio de Janeiro, RJ, Brazil.

Date and Organization:

May 7-9, 2025

Rio de Janeiro, Brazil

Laboratory of Simulation and Methods in Engineering (LASME)

Alberto Luiz Coimbra Institute of Graduate Studies and Research in Engineering (COPPE)

Hosting:

Federal University of Rio de Janeiro (UFRJ)

Support:

Coordination for the Improvement of Personal Higher Education (CAPES)

Coppetec Foundation (UFRJ)

Enhanced Oil Recovery Laboratory (LRAP, UFRJ)





Goal of the Conference

Much progress has been made in terms of flow and transport research in unsaturated media, but there is still a need to build a parallel to mathematically explain the phenomena present in human daily life, thereby helping with predictions and decision-making. The main objectives of the conference are to disseminate the latest research in modeling porous media at different scales (molecular, pore, laboratory, field, regional scales), to promote the exchange of research between various disciplines and regions of this world, encouraging joint research, and building a network of contacts for young researchers.

The concept of porous media is used in several areas of science and engineering, such as geomechanics, soil and rock mechanics, geology, civil and petroleum engineering, bioremediation, the geosciences (hydrogeology, geophysics, biology), and materials science. Multiphase flow in porous media is an important topic and has stood out as a primordial field of research in such areas as soil, environmental and energy studies, including for devising new forms of energy (e.g., fuel cells and capturing carbon dioxide). Many natural systems such as soils, rocks, zeolites, biological tissues (bones, wood), as well as engineered materials such as cement, ceramics, paper, and pharmaceutical products, can be classified as porous media.

Relevance of the Conference

Technological advancements and environment sustainability now require a multidisciplinary approach in which it is crucial to identify the impacts of today's actions on the future. We can predict these impacts using tools such as modeling multiphase flow phenomena and the transport of substances in different media. It is crucial to understand that the environment is common to everyone, and that local consequences can impact the rest of the planet. Therefore, the relevance of this conference lies in the possibility of presenting and discussing various research topics related to the environment.

Martinus (Rien) van Genuchten is considered an icon in the field of porous media research and applications, having been the winner of the



2023 Wolf Prize in Agriculture, one of the most prestigious awards in the world, as an affiliate member of PEN/UFRJ. Over the course of his nearly fifty-year career, he revolutionized soil physics and vadose zone hydrology by expanding into several areas of science. He developed an important scientific system based on an understanding of fluid flow and contaminant transport processes in unsaturated porous media. The "van Genuchten equations", due to their attractive mathematical characteristics and simplicity, are now widely used in numerical simulators

around the world, being applied in areas such as agriculture, environmental science, civil engineering, mechanics, chemistry, and nuclear and petroleum science and engineering, as well as in other disciplines.

Rien van Genuchten was born in the Netherlands and graduated from Wageningen University. He obtained his doctorate in the USA, and worked for almost 30 years at the U.S. Salinity Laboratory in Riverside, California. Since 2008, he has worked in the Departments of Mechanical, Civil and Nuclear Engineering at UFRJ, where he now is a Collaborating Professor. He currently divides his time between UFRJ in Brazil and Utrecht University in the Netherlands.



Target Audience

The Conference aims to bring together and connect researchers, students and professionals from research institutions and industry, with the aim of promoting the dissemination of knowledge in the field of porous media. The event will promote the discussion of topics relevant to professionals who work with different types of porous media, thus allowing researchers from different fields, whether academic, scientific, private or governmental, to not only present the state of the art in a specific area, but also to debate the challenges we face and possible solutions. This always by considering how to bequeath a healthier environment to future generations, with cleaner and more sustainable technologies in the long term. The target audience are researchers in the area of porous media (technology companies, regulatory bodies, agriculture, the oil and gas research domain, universities, and a range of research and teaching institutes).

The event will include sessions by guest speakers (experts in their fields), sessions with lectures selected from the submitted technical abstracts, as well as a poster session so that especially researchers at the beginning of their careers can present their work. By bringing together renowned scientists and young researchers, the conference will enable the exchange of knowledge within the scientific community at all levels, in addition to facilitating projects and collaborations between different institutions and countries.

Committees

ORGANIZING COMMITTEE

Coordinator: Su Jian
(COPPE/UFRJ, Brazil)

Collaborators:

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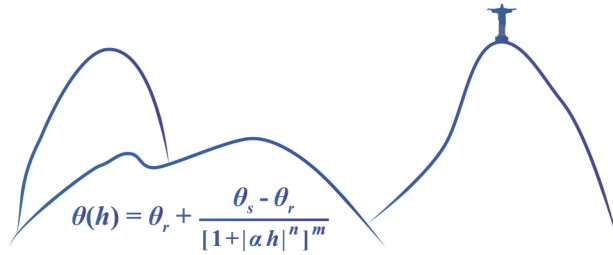
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