



**KIMBERLY-CLARK  
DISTINGUISHED LECTURESHIP  
AWARD 2025**



**Prof. Rainer Helmig**  
University of Stuttgart,  
Germany

Hosts may select one of two options detailed below:

**Lecture 1—POROUS MEDIA AND FREE-FLOW COUPLING—from REV to pore scale and back**

Flow and transport processes in domains composed of a porous medium and an adjacent free-flow region appear in a wide range of industrial, bio-medical and environmental applications. Industrial applications range from flow in fuel cells to drying processes; possible bio-medical applications include the interplay of distribution processes in blood vessels and in the surrounding tissue.

Applications in environmental systems include infiltration of overland flow during rainfall, groundwater contamination

due to infiltrating pollutants and evaporation from soil.

One of the key challenges for coupled free flow and porous-medium flow arises from the fact that the overall effective behaviour depends strongly on interface processes that occur on small spatial scales (pore scale), although the overall system of interest is often too large to resolve these processes explicitly in detail. REV-scale models are usually not able to capture all the relevant physical processes for such coupled systems. For the accurate description of interface phenomena, it is therefore necessary to develop model concepts that combine information gained through pore-scale and REV-scale models .

**Lecture 2 - FROM THE BRAIN TO WATER UPTAKE OF ROOTS TO FUEL CELLS— Porous Media are “almost” everywhere**

Porous media are almost everywhere. The understanding of flow, transport and deformation processes in porous media is important for the optimization of fuel cells, energy storage, the prediction of landslides due to heavy rainfall or the spread of tumors in human tissue.

In this lecture, a brief overview of the importance of porous media will be given. Using selected examples, the range from environmental to technical and relevant bio-issues will be covered.

The next step is to present selected modelling approaches and analyses using two concrete application examples:

1- to use the knowledge of porous media to make better predictions when multiple sclerosis flares. What happens in the porous medium "brain" when the blood-brain barrier no longer functions properly? How can research in the field of porous media positively influence the treatment of multiple sclerosis?

2 - to discuss whether it is possible to improve water management in fuel cells as a drive technology with our knowledge of porous media. What role does the understanding of porous media play in the context of alternative forms of mobility such as fuel cells? Are our "classical models" for water transportation helpful?

**Learn more:**

<https://www.interpore.org/awards/kimberly-clark-distinguished-lectureship-award-2025/>



## BIO OF PROF. RAINER HELMIG

Prof. Rainer Helmig is the head of the Institute for Modelling Hydraulic and Environmental Systems, Department of Hydromechanics and Modelling of Hydrosystems at the University of Stuttgart, Germany.

Rainer Helmig is widely recognized as a pioneer and visionary in developing numerical modelling concepts in the fields of groundwater hydrology, subsurface energy storage, and coupled processes at the interface between porous media and free-flow compartments.

Over the course of his illustrious career, Rainer Helmig has consistently produced groundbreaking research that has pushed the boundaries of knowledge in the field of porous-media research. His work has been instrumental in solving real world problems, his methodologies have been adopted widely and have had a transformative impact on the field.

Beyond his research contributions, Rainer Helmig has been a dedicated mentor and educator, nurturing the talents of emerging scientists and engineers in the field.

## KIMBERLY-CLARK DISTINGUISHED LECTURESHIP AWARD

Among other awards, each year, InterPore will select a porous media researcher with a very high international recognition as the “InterPore Kimberly-Clark Distinguished Lecturer on Porous Media Science & Technology”. The award winner will share a topic relevant to the industrial porous media community through a series of lectures at various member and non-member organizations.

### A word of gratitude:

This award has been made possible by a generous grant from **Kimberly-Clark**, home to some of the world’s most iconic and trusted brands, including: Huggies, Scott, Kleenex, Cottonelle and Kotex. For more than a century Kimberly-Clark has been transforming insights and technologies into innovative products and services that improve the lives of nearly a quarter of the world’s population.

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## INTERPORE FOUNDATION

InterPore Foundation for Porous Media Science and Technology is a non-profit, non-governmental, independent organization. It was founded by the International Society for Porous Media in 2016.

Find out more about the **InterPore Foundation**:  
[www.interpore.org/interpore-foundation/](http://www.interpore.org/interpore-foundation/)

## HOW TO APPLY

Are you interested in hosting Prof. Helmig at your institution? Please submit your application online. Non-members may also apply.

To request the presentation, please visit: <https://www.interpore.org/awards/kimberly-clark-distinguished-lectureship-award-2025/>, download and fill out the application form and return it by e-mail to: [sandra.bartsch@interpore.org](mailto:sandra.bartsch@interpore.org). For further questions please contact: [executive-officer@interpore.org](mailto:executive-officer@interpore.org).

Please be aware that the lecturer availability will be limited and not all requests can be honored by the lecturer. Applications received in 2024 will be treated and scheduled with priority .

## LECTURE OPTIONS

In-person appearances are preferable, but Prof. Helmig will also be offering online lectures .

Hosts may select from one of the two lectures detailed in this brochure.



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