



**InterPore2022**  
*Hybrid*

# Post-Conference Report

30 May - 02 June 2022

Khalifa University  
Abu Dhabi, United Arab Emirates  
& online



جامعة خليفة  
Khalifa University

## CONFERENCE SUMMARY

InterPore2022 was the 14th annual meeting of the International Society for Porous Media and the society's first hybrid conference. The scientific portion of the conference was held over four days, with a welcome reception the evening prior to its beginning. Satellite short courses were also held prior to and post-conference. They were "Multiphase Flow in Permeable Media: A Pore-Scale Perspective" with Martin Blunt on Sunday, 29 May and "Capillarity in Porous Media at Different Scales" with S. Majid Hassanizadeh on Friday, 03 June. A total of 635 participants from 38 countries and over 140 different organizations attended the meeting. 221 participated in-person in Abu Dhabi and 414 joined online through Whova, the conference's online platform. All participants were provided access to Whova for the week prior to the meeting, through the three weeks following. Four plenary and eight invited speakers gave lectures during the conference. These lectures were recorded and made available for any-time viewing on Whova.

Throughout the course of the conference, 362 oral presentations from 24 minisymposia were given during 69 parallel sessions. The hybrid nature of the conference allowed authors to present their work either in-person or online during the sessions. Attendees could view the sessions in the physical session rooms at Khalifa University, with online presentations being broadcast into the room, or through Whova. 130 of the presentations were presented in-person while 232 were presented remotely. Authors of oral presentations were asked to provide pre-recorded presentations which were viewable at any time on Whova. The online chat and Q&A features also allowed for discussions outside of the set session times. 133 posters were also presented during the conference - 34 of them were displayed at the conference venue as well as online and 99 of them were viewable in digital form through Whova. Twice daily during the conference, poster sessions were held simultaneously with a coffee break in the poster and exhibition hall, giving participants the chance to visit the exhibition booths, view posters and network with other attendees.

Four exhibitors were physically present during the event - Thermo Fisher Scientific, TESCAN, ZEISS, and HOT Microfluidics. These exhibitors also had virtual exhibition space on Whova, joining the online-only exhibitors IFP Energies Nouvelles, COMSOL and MDPI Computation. Each of the exhibitors was given the opportunity to present a 5-minute pitch prior to an invited lecture.

In addition to the scientific portion of the conference, social and networking events were held and included a Welcome Reception sponsored by Khalifa University, the Student Affairs Committee's Career Event, lab tours at the two Khalifa University campuses, a visit to the Sheikh Zayed Grand Mosque, and a gala dinner at Shangri-La Qaryat Al Beri Hotel, sponsored in part by the Abu Dhabi Ministry of Tourism. Furthermore, participants were issued a complimentary ticket to visit the Louvre Abu Dhabi at their leisure, courtesy of the Abu Dhabi Ministry of Tourism. Each participant was provided a complimentary backpack, generously provided by Khalifa University, branded with the InterPore2022 and Khalifa University logos.

Reactions to the hybrid format were largely mixed. In-Person participants expressed deep appreciation for being able to gather and connect with fellow researchers again but found the large number of online participants detracted from the experience due to technical issues and inability to interact. Online participants had a more positive experience from the hybrid oral sessions, mostly due to the ability to join the conference regardless of their travel and/or financial circumstances. A common consensus between both online and in-person participants were the poster sessions; the number of in-person posters were too few to be highly engaging and online poster sessions were cumbersome and not well attended. Feedback regarding the availability of pre-recorded presentations continues to be overwhelmingly positive.

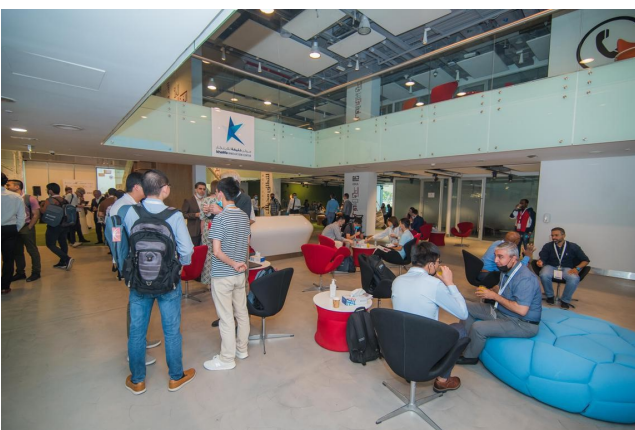


## CONFERENCE HIGHLIGHTS

### Sunday, 29 May - Day 1 Highlights

InterPore2022 kicked-off with a welcome reception held at Khalifa University's Innovation Center. After a minute of silence for the recently deceased President of the United Arab Emirates, Sheikh Khalifa bin Zayed Al Nahyan, guests were welcomed with speeches from **Dr. Arif Sultan Al Hammadi**, General Chair of InterPore 2022 Local Organizing Committee and Executive Vice President of *Khalifa University*, **Prof. Majid Hassanizadeh**, Managing Director of *InterPore*, and **Dr. Mohamed Sassi**, Local Organizing Committee Chair of InterPore 2022 and Professor & Acting Department Chair of Petroleum Engineering at *Khalifa University*.

After the welcoming speeches and a video introduction of Khalifa University, an award ceremony chaired by **Michel Quintard**, InterPore President, was held. Because InterPore2022 was the first opportunity to gather in person since the start of the COVID-19 pandemic, awards from 2020 and 2021 were distributed to recipients in attendance. The first recipient was **Jacques M. Huyghe** of *University of Limerick and Eindhoven University of Technology*. Professor Huyghe received the **2021 Kimberly-Clark Distinguished Lectureship Award** for his pioneering research at the interface between biomedical and petroleum engineering. Next, **Hamad Aslannejad**, *Utrecht University*, was presented with the **2020 PoreLab Award for Young Researchers**. The **2021 InterPore Meritorious Service Medal** was presented to **Oleg Iliev** from *Fraunhofer Institute for Industrial Mathematics* for his numerous contributions to InterPore since its inception in 2008. Lastly, **InterPore Rosettes** were awarded to 2020 recipient **Nicolae Tomozeiu**, *Canon Production Printing*, and to 2022 recipients **Sridhar Ranganathan**, *Kimberly-Clark*; **Shuyu Sun**, *King Abdullah University of Science and Technology (KAUST)*; **Vahid Nassar**, *University of Manchester*; **Thomas Ramstad**, *Equinor*; **Mohaddeseh Mousavi Nezhad**, *University of Warwick*; and **Anne M. Hansen**, *Mexican Institute of Water Technology*.

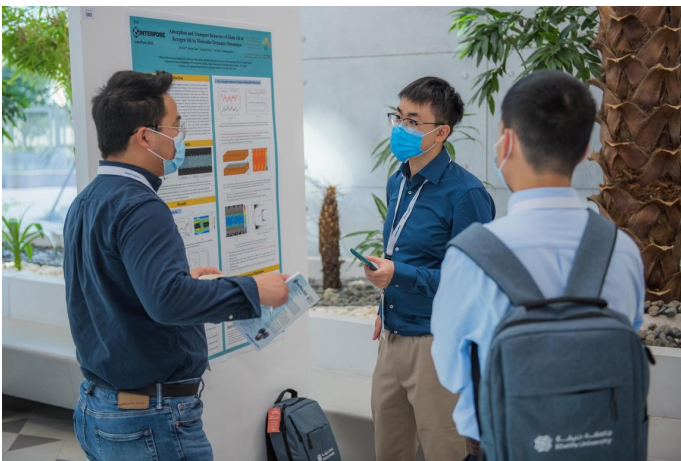


## Monday, 30 May - Day 2 Highlights

In the first plenary session, the conference was officially started with an opening speech by **Michel Quintard**, *InterPore President*, wherein he thanked all the committees who contributed to the first in-person conference and welcomed the participants to the first in-person conference after two-years. He gave a brief introduction to **Brian Berkowitz** (*Weizmann Institute of Science*), newly-appointed Director of the **InterPore Academy**. Brian spoke about the activities of and future plans for the Academy. Michel then awarded **Azita Ahmadi-Senichault**, *École Nationale Supérieure d'Arts et Métiers*, with the **2022 InterPore Meritorious Service Medal** for her continued involvement in the establishment and development of InterPore. Due to severe delayed flights, the planned plenary speaker was unable to present on Monday as scheduled. Therefore, **Sujit Datta**, *Princeton University*, stepped in to provide the plenary lecture on his topic **"Life in a Tight Spot: How Bacteria Swim, Disperse, and Grow in Porous Media"** instead of presenting it during an invited session later in the week.

In the afternoon, two invited sessions were held in parallel. **Vahid Niasar**, *University of Manchester*, presented his lecture, **"Advances in pore-scale characterisation of multiphase flow and transport in porous materials"** and **Stephan Matthai** from *The University of Melbourne* spoke on **"Modelling & Simulation of Multiphase Flow in Highly Heterogeneous Geologic Porous Media."**

The day concluded with **Lab Tours** at both of the Khalifa University campuses. Participants could choose from a tour at the Sas Al Nakhl Campus containing the Research and Innovation Center on CO<sub>2</sub> and Hydrogen, Center for Membranes and Advanced Water Technology Research, as well as the Drilling Simulator Lab and Fluid Property Lab, among others, or the Main Campus which contains the Advanced Digital and Additive Manufacturing Center and KU Space Technology and Innovation Center.



## Tuesday, 31 May - Day 3 Highlights

Tuesday's plenary session was chaired by InterPore President-Elect, **Karsten Thompson** (LSU.) InterPore Program Committee Chair, **Patrick Jenny** (ETH Zurich) introduced the Honorary Lifetime Membership Award which is reserved for individuals who have made extraordinary contributions to porous media science and technology and are world renown in the porous media community. **Alex Hansen** (Norwegian University of Science and Technology) presented **Signe Kjelstrup** from *PoreLab Center of Excellence* with the **2022 Honorary Lifetime Membership Award** for her extraordinary contributions in applying the methods of non-equilibrium thermodynamics to describe multiphase flow in porous media, with applications in fuel cell technology, transport of nano-sized medication particles in the bloodstream, and the minimization of heat loss of reindeer and seal noses in winter. InterPore Program Committee Vice-Chair, **Sridhar Ranganathan** (Kimberly-Clark), presented the **2022 Kimberly-Clark Distinguished Lectureship Award** to **Adrian Bejan** of *Duke University*. Member and non-member organizations can apply to host Adrian's lecture "Vascular materials: Predicting Design Evolution" in 2022. **Laura De Lorenzis** of *ETH Zurich* gave her plenary lecture "Phase-field modeling and simulation of desiccation-induced cracking."

Two invited sessions were held in parallel later in the day. **Eduardo Abreu** (University of Campinas [IMECC – UNICAMP]), presented his lecture, "Lessons from flows through porous media for solving nonlinear hyperbolic problems" and **Adam Weber** (Lawrence Berkeley National Laboratory) who was scheduled but unable to give Monday's plenary lecture, spoke on "Transport and Multiphase Flow in Porous Media for Electrochemical Technologies."



## Wednesday, 01 June - Day 4 Highlights

Wednesday's morning plenary session began with opening remarks by session chair and InterPore Treasurer **Azita Ahmadi-Senichault** (*ENSAM - I2M*) and introduction of InterPore Honors & Awards Committee Chair, **Branko Bijeljic** (*Imperial College*). Branko introduced the two awards to be handed-out during the ceremony and **Jon Olson** (*The University of Texas, Austin.*) As the nominee of this year's winner, Jon presented the **2022 InterPore Medal for Porous Media Research** to **Masa Prodanovic** (*The University of Texas, Austin*) for her outstanding research in the areas of modeling multiphase interfaces in porous and fractured media, multiscale characterization and modeling of microporosity in carbonates, salt and unconventional reservoirs, and modeling of transport of particulate suspensions and ferrofluids. Masa's acceptance speech was followed by **Nima Shokri** (*Hamburg University of Technology*) who presented winner **Sujit Datta** (*Princeton University*) with the **2022 InterPore Award for Porous Media Research** for his ground-breaking contributions to understanding complex problems related to multiphase and multiscale dynamics in porous media. Following the awards ceremony, Azita gave an introduction to the plenary lecturer, Peng Xu from China Jiliang University, who presented his work on **Fractal Theory of Porous Media**.

In the afternoon, parallel invited lectures were given by **Dominique Derome** from *Universite De Sherbrooke* on "**Hysteresis of mass transport in porous media**" and **Zuleima Karpyn** from *Penn State University* who presented "**Experimental Investigation of Conditions Favoring Enhanced Gas Storage in Shales.**"

The Student Affairs Committee hosted their annual **Career Development Event**, which was again open to all participants of the InterPore conference. During the event, the four panelists, Masa Prodanovic (University of Texas at Austin), Vahid Niasar (University of Manchester), Patrick Jenny (ETH Zurich) and Sarah Gasda (NORCE), shared their professional journeys and gave young researchers the opportunity to learn more about varied career options.

The day ended with a visit to the **Sheikh Zayed Grand Mosque**, one of the world's largest mosques, followed by the **Gala Dinner** at the Shangri-La Qaryat Al Beri Hotel. Participants enjoyed the cultural activity and the chance to socialize outside of the scientific event.



## Thursday, 02 June - Day 5 Highlights

Thursday morning began with two parallel invited lectures. **Evangelos Tsotsas** of *Otto von Guericke University* gave his lecture entitled “**Discrete models, continuum models and scale transitions for the drying of porous media**” while **Ruina Xu** of *Tsinghua University* discussed “**Supercritical CO<sub>2</sub> flow and heat/mass transfer in micro/nano-porous structures in CO<sub>2</sub> geological utilization and storage.**”

The plenary session in the afternoon began with session chair and InterPore Local Organizing Committee Chair, **Mohamed Sassi** of *Khalifa University*, welcoming attendees and InterPore Foundation Director **Afshin Goharzadeh** (*Khalifa University*). Afshin gave a brief talk on the mission and activities of the Foundation. **Alex Hansen** of *PoreLab, NTNU*, spoke about the **InterPore PoreLab Award for Young Researchers** and awarded the 2022 recipient, **Senyou An** (*University of Manchester, Imperial College London*) for excellent research on advanced computational methods for the analysis and simulation of fluid flow and solute and heat transport in porous materials. Next, the **2022 Rien van Genuchten Early-Career Award of Porous Media for a Green World** was awarded by **Noushine Shahidzadeh** (*University of Amsterdam*) to **Siva Rama Satyam Bandaru** of *University of California Berkeley* in recognition of his research on the development and implementation of Electro Chemical Arsenic Remediation (ECAR); a low-cost robust technology for cleaning polluted groundwater. **Eduardo Abreu** from *University of Campinas (IMECC – UNICAMP)* then introduced the **2022 National Chapter Award** to the France National Chapter, accepted on the chapter’s behalf by **Linda Luquot** (*CNRS-Géosciences Montpellier*.) Following the award ceremony, Mohamed introduced the plenary speaker, **Abraham Duncan Stroock** of *Cornell University*, who presented his lecture “**The Pulse of Plants.**” The session and the conference came to a close with a ceremony hosted by **S. Majid Hassanizadeh** (*Stuttgart University*). First, Student Award and Grants Sub-Committee Chair **Mohaddeseh Mousavi Nezhad** (*University of Warwick*) announced the **2022 MDPI Energies Student Poster Awards**. The poster awards were given to **Beibei Gao** from *University of Virginia* for her poster “**Retention of Chemotactic Bacteria in Dual-permeability Microfluidics with Residual NAPL**” and to **Kotone Sakemoto** of *Kyoto University* for the poster “**Dependence of hydraulic conductivity on effective confining pressure in rocksand concretes.**” **Michel Quintard**, *Institut National Polytechnique de Toulouse* and InterPore President, made some closing remarks and thanked the Local Organizing Committee for their efforts and contributions to the success of the first hybrid conference. Majid then presented **InterPore Rosettes** to three members of the Local Organizing Committee - **Emad W. Al Shalabi**, **Muhammad Arif**, and **Mohamed Sassi** - for their dedication and leadership in the conference’s organization. A Rosette was also awarded to InterPore Program Committee Chair **Patrick Jenny** (*ETH Zurich*) for his role in the success of the scientific portions of InterPore conferences. To close out the InterPore2022 conference, a video on Edinburgh, site of InterPore2023 was shown.



## SOCIAL MEDIA STATS

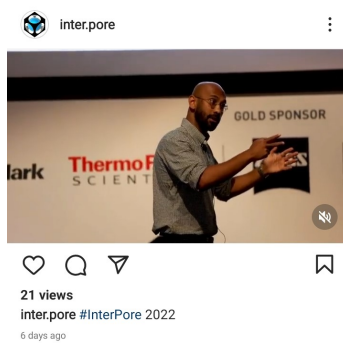
Reflects posts created by InterPore and Khalifa University using #InterPore2022 since January 2022

Platform	LinkedIn	Facebook	Twitter	Instagram	Total
Number of Posts	54	34	51	30	169
Impressions	69,620	3,641	14,369	13,093	100,723
Engagements	8,197	112	563	692	9,564
Engagement Rate	11.8%	3.0%	3.9%	5.3%	9.5%
Clicks	7,279	225	110	238	7,852
Click-thru Rate	10.5%	6.2%	0.8%	1.8%	7.8%

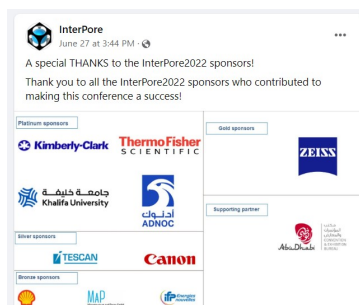


3,152 views  
 khalifauniversity .  
 تستضيف #جامعة خليفة اليوم وللمرة الأولى في المنطقة مؤتمر "الجمعية الدولية للمواد المسامية 2022" في الفترة ما بين 30 مايو إلى 2 يونيو في حرم جامعة خليفة الرئيس حيث تشمل مجموعة من العروض التقديمية وأربع جلسات عامة وثمان محاضرات سبقها خبراء دوليون من مختلف التخصصات العلمية والهندسية.

#InterPore2022 Conference, the 14th annual meeting of InterPore Society, will be held from May 30 until 2 June at the @KhalifaUniversity Main Campus. In addition to the presentations, the event will have four plenary and eight invited lectures with global experts from multiple scientific and engineering disciplines.  
 May 30 - See translation



21 views  
 inter.pore #InterPore 2022  
 6 days ago



InterPore @InterPoreTweets · May 31  
 InterPore2022 has already started online!  
 Multiple interconnected and parallel lines of communication improve the outreach and facilitate fast and in-depth discussions.  
 Fear of missing out? You can still join InterPore2022!  
[events.interpore.org/event/40/page/...](https://events.interpore.org/event/40/page/)

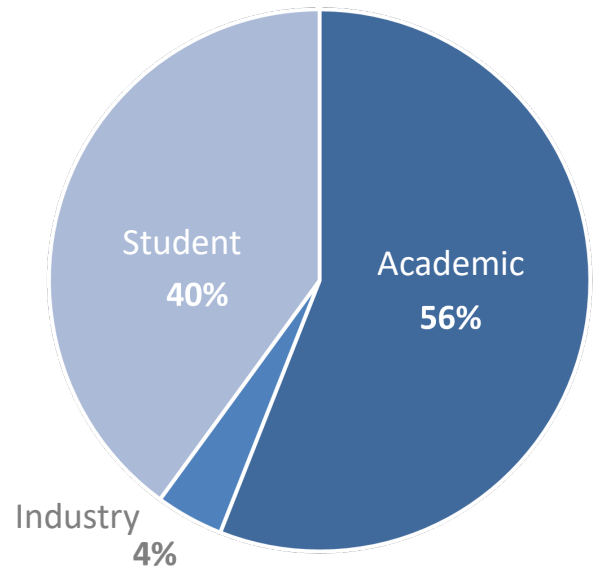
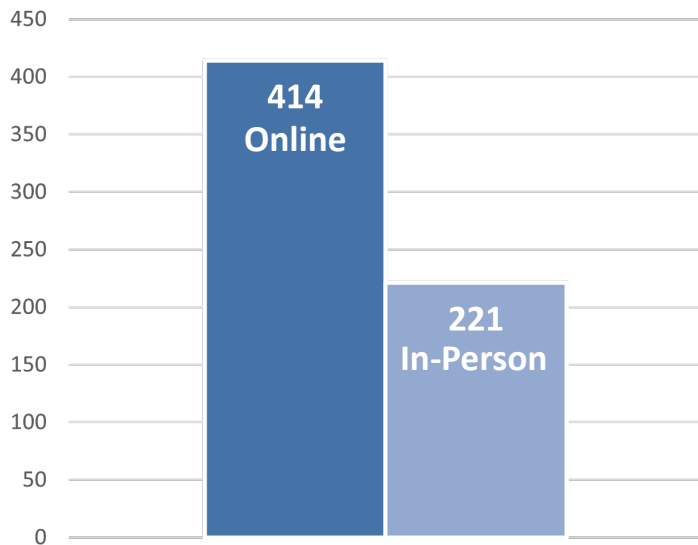
InterPore @InterPoreTweets · May 3  
 The detailed #InterPore2022 conference program is now available for viewing: [whova.com/embedded/event...](https://whova.com/embedded/event...)  
 Don't see your presentation listed? Then we don't have a record of your registration - contact us at [conference2022@interpore.org](mailto:conference2022@interpore.org).

Event	Date
loading digital content	21 May 2022
ifses	29 May 2022
live conference	30 May 2022
of the conference	2 June 2022
ifses	3 June 2022



## CONFERENCE IN NUMBERS

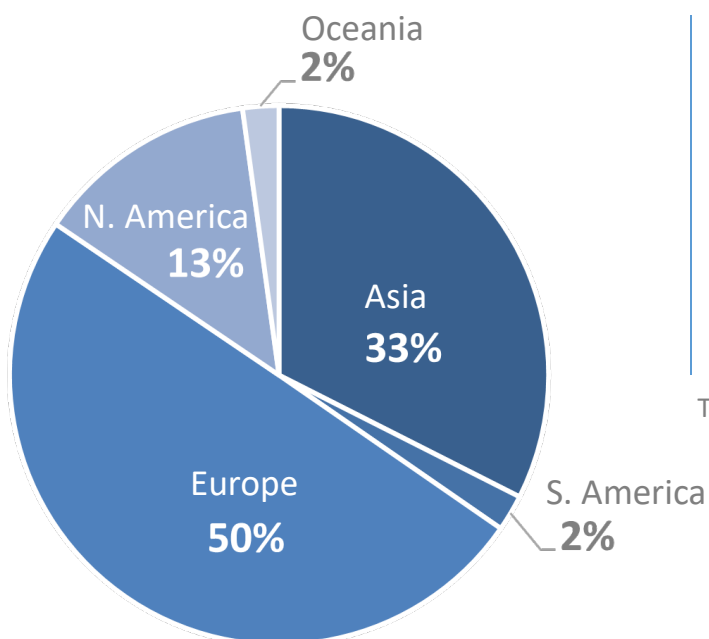
### Participation



Total number of participants: 635

**24** Minisymposia      **329** Oral Presentations      **133** Posters  
**69** Oral Sessions      **8** Invited Speakers      **4** Plenary Speakers  
**11** Sponsors      **7** Exhibitors

### Attendance by Region



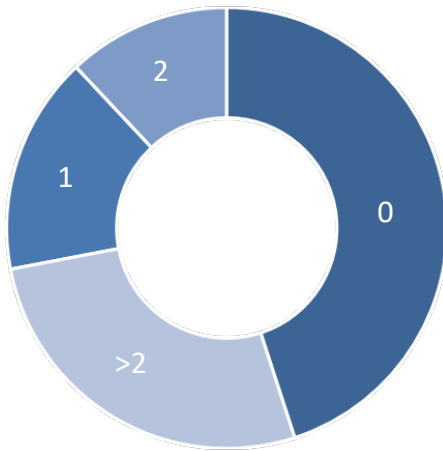
### Top 10 Countries in Attendance

<b>1</b>	China	90	<b>6</b>	France	43
<b>2</b>	UK	82	<b>7</b>	Netherlands	24
<b>3</b>	USA	71	<b>7</b>	Norway	24
<b>4</b>	Germany	64	<b>9</b>	Saudi Arabia	23
<b>5</b>	UAE	57	<b>10</b>	Switzerland	21

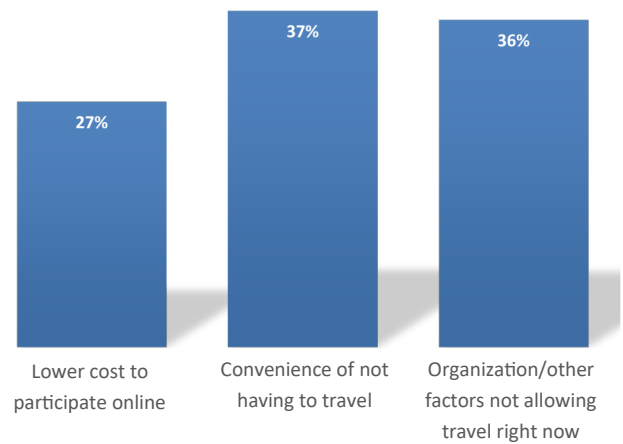
Total number of countries represented: 38

## POST-CONFERENCE SURVEY\*

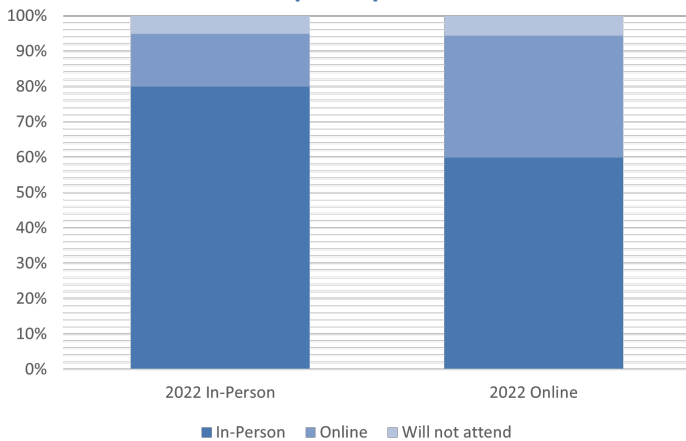
Number of previous InterPore conferences attended



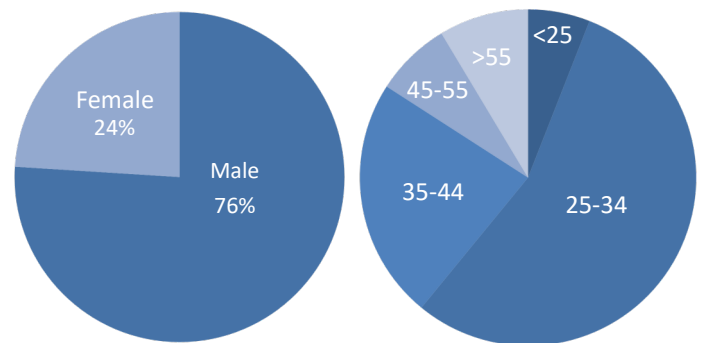
Why did attendee choose online participation, if applicable



Anticipated InterPore2023 participation



Demographics



**73%** 1st time participants heard via word-of-mouth

**52%** Feel conference fees are just right

**93%** Satisfaction with scientific program

**89%** Satisfaction with Whova

*"The conference is well organized, I hope to have more opportunities to communicate with colleagues, Their research results have inspired me a lot."*

*"I really enjoyed this conference. Everything was planned really well. Good selection of invited speakers. Definitely coming to the next conference."*

*"I was seriously impressed about the conference. It is the number #1 platform for community building. We now see the formation of a new community around novel thermodynamically-based models for 2-phase flow, with contributors from Australia over Norway to the US."*

*"It's very easy to feel very disconnected when attending the conference remotely, but hard to compete with the lower price, easier logistics, and significantly reduced carbon footprint. I think running the conference hybrid, unfortunately, gets the worst of both worlds, rather than the best."*

*"A hybrid event has its own pros and cons, it is good to have pre-recorded presentation and recording of keynotes however there are some difficulties in terms of interaction between onsite and online attendees/chairs."*

*"I wish there could be some opportunities to enhance face-to-face interactions for people joining online. Many people don't have any visitors to their poster sessions."*

\*Survey responses collected from 24% of participants

## SINCERE THANKS TO OUR CONFERENCE SPONSORS

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### PLATINUM



### GOLD



### SILVER



### BRONZE



### SUPPORTING PARTNER



# 15th Annual International Conference on Porous Media

22 - 25 May 2023  
Edinburgh, Scotland

*Short Courses 21 & 26 May*

The **scientific program** ranges from **pore-scale modeling, pore-scale imaging, to experimental and numerical methods on larger scales, to sensitivity and uncertainty analysis**. Stay abreast of the latest porous media research on trending topics such as **energy storage, biotechnics and nature-based agriculture**. Presentations will be given on a wide variety of porous media processes in highly diverse applications, including: **transport phenomena, soil mechanics, fuel cells, filters, foams, membranes and more**. InterPore2023 also offers opportunities to find collaborative **industrial and application-oriented institutional partners**.

## Topics and Applications

- Mass and heat transport
- Multiphysics-multiphase flow
- Reservoir engineering, CO<sub>2</sub> sequestration, geothermal energy and energy storage
- Colloids and nanoparticle transport
- Soil mechanics and engineering
- Swelling porous media
- Wave propagation
- Biotechnology and biofilms
- Thin and nanoscale poromechanics
- Fuel cells and batteries
- Food, wood, composites
- Fibers and textiles
- Filters, foams, membranes, papers
- Ceramics and construction materials

## Venue and city

The 15th Annual InterPore Meeting will be held at the Edinburgh International Conference Centre (EICC) in the heart of Edinburgh, Scotland. Home to three UNESCO Heritage Sites, four Universities and named the UK's "Greenest City", Edinburgh is full of history, culture and places waiting to be explored.

EICC's state-of-the-art facilities include adaptable auditoria, break-out suites and spacious exhibition and reception areas all complemented by the latest technologies. The EICC is easily accessible by public transportation and is only 10km away from Edinburgh International Airport, which offers over 300 flights a day to more than 130 UK and worldwide destinations.



## Plenary Speakers

**Adrian Bejan** - Duke University

**J. Carlos Santamarina** - KAUST

**Nathalie Tufenkji** - McGill University

## Program Committee

**Chair:** Patrick Jenny - ETH Zürich

**Vice-Chair:** Sridhar Raganathan - Kimberly Clark

## Local Organizing Committee

School of Energy, Geoscience, Infrastructure  
and Society

Heriot Watt University

Andreas Busch (Co-Chair), Florian Doster (Co-Chair),

Hannah Menke, Julien Maes & Kamaljit Singh

## Invited Speakers

**Shervin Bagheri** - KTH Royal Institute of Technology

**Bruce Balcom** - University of New Brunswick

**Rouhi Farajzadeh** - TU Delft

**Lidietta Giorno** - Institute on Membrane Technology (CNR-ITM)

**Behnam Jafarpour** - University of Southern California

**Raffaella Ocone** - Heriot-Watt University

**Adriana Paluszny** - Imperial College London

**Gerard Vignoles** - University of Bordeaux