

Separations & Filtration

InterPore represents the **intersection of all applications of porous media research**. It brings together **academic and industry researchers** and connects practitioners across a **wide variety of disciplines**. The InterPore scientific program ranges from fundamental pore-scale behavior, to advanced imaging techniques, to large-scale computational modeling, and much more.

The InterPore Annual Meeting provides a unique opportunity to learn about current research on topics such as **filtrations, membranes, and bio/pharmaceutical porous media**, while at the same time gaining **access to hundreds of other talks** from the world's experts in diverse areas, but which can be surprisingly relevant.

We invite you to register for InterPore2022, which gives **in-person or remote access to the full scientific program**. See the selected minisymposia and presentations listed on this flyer, or browse the entire program on the conference website.

Plenary & Invited Lectures



Abraham Stroock
Cornell University
The Pulse of Plants



Sujit Datta
Princeton University
Life in a Tight Spot: How Bacteria Swim, Disperse, and Grow in Porous Media



Evangelos Tsotsas
Otto von Guericke-Universität
Discrete Models, Continuum Models and Scale Transitions for the Drying of Porous Media

www.interpore.org/2022

On-Site, Online & On-Demand

Networking Events

Physical & Virtual Exhibitions

Workshops & Lab Tours

Minisymposia Topics

- Biochemical processes and biofilms in porous media
- Fluid Interactions with Thin Porous Media
- Biophysics of living porous media: theory, experiment, modeling and characterization
- Manufactured Porous Materials for Industrial Applications
- Porous Media for a Green World: Water & Agriculture
- Interfacial phenomena in multiphase systems
- Electrochemical processes in porous media
- Advances in imaging porous media: techniques, software and case studies
- Swelling and shrinking porous media
- Fluids in Nanoporous Media





Presentations Include

Particle Transport and Trapping

- Preferential Flow of Emulsion through Homogeneous Porous Media
- 2D Particle Tracking Velocimetry in Multiphase Flow in Porous Media
- Flow dynamics of multiple fluids and solid particles in porous media
- Effect of nanoparticles on the water-soluble polymers flow in porous media
- Analysis of Stokes-Brinkman modeling for solute/particle transport in a domain with microporous regions
- Experimental study of drying in the presence of fluorescent particles in model porous media
- Evaluation of zero-valent iron nanoparticles (nZVI) injection tests in porous media using synchrotron X-ray computed microtomography
- Transport and retention of nanoparticles in natural porous media-Effect of pore structure and geometry.

Separations and Filtration

- Application of Screen Channel Liquid Acquisition Devices for Phase Separation in Microgravity
- Surface-washing of contaminated porous substrates
- Laboratory scale demonstration of cationic organics removal by graphene oxide nanosheets injection in porous media
- The effect of porosity and pore structure on the accumulation of particles into cullulosic fibrous filters

Membranes

- Numerical modeling of the influence of Gas Diffusion Layer properties on liquid water transport and transient responses in a Proton Exchange Membrane Fuel Cell (PEMFC)
- Sherwood number correlation for reverse osmosis membrane systems in turbulent regime
- Initial Yield Surface of Cellular Sheet TPMS Lattices
- Direct Solar Membrane Distillation Device with Micro-3D Printed Spacer and Titanium Mesh

Materials

- Production and characterization of porous sludge-derived biochar as a sustainable solution for the water industry
- Fabrication, Characterization, and Testing of Architected 3D Graphene Foams
- Optimisation and characterisation of a dual porosity medical grade porous medium for personalised inkjet printed dosages applications
- Additive Manufacturing of open porous structures: correlation of laboratory testing to simulations for application related properties

Thin Porous Media

- Decontamination-induced contaminant redistribution in porous media
- Development of a method to investigate the distribution of components in the cross-section of coated media before and after printing
- Inkjet printing of surfactant solutions onto thin moving porous media
- Chromatographic Effects in Inkjet Printing
- Capillary imbibition and swelling of thin paper sheets
- Experimental Studies on Permeabilities of Thin Fibrous Materials

Biochemical & Phamaceutical

- Modelling pharmaceutical tablet swelling using discrete element modelling and a single particle swelling model
- Microfluidic study of biomass-growth induced changes on hydraulic properties. Investigation of growth characteristics under varying nutrient gas environments.
- A novel platform for monitoring and imaging bacterial biofilm growth in complex structures
- Development of bio-cellulose based biofilms from recycled food wastes with potential applications in medical, food and environmental sectors
- Visualizing biofilms within porous media using contrast-enhancing staining agents
- Time evolution of biofilm' permeability field in porous media and control on fluid flow velocities
- Mechanisms driving intermittency in preferential flow paths in porous media biofilms
- Engineering biofilm hydraulic resistance on the microscale
- Imaging and chemical analysis of ureteral stent encrustation and incrustation
- A porous media flow model for simulating flow of non-Newtonian bone cement inside a deformable vertebra in the context of vertebroplasty
- Reduced-order model to investigate cell-scale hemodynamics through disordered porous networks of the human placenta
- Two-step diffusion in cellular hygroscopic (vascular plant-like) materials

Selected Fundamentals

- Pore-scale modelling of polymeric solutions in porous media
- Influence of solute transport and capillarity on bubble evolution in porous networks
- Salt crystallization at a hydrophobic-hydrophilic interface in quasi 2D layered porous material.