

## 2025 Annual Report from InterPore National Chapter

[IRAN INTERPORE CHAPTER]

Light report

Substantial report

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**Creation Date: December, 2021 (Reactivation)**

**Executive Summary of National Chapter:** (50-100 words on purpose of the Chapter and specific objectives in addition to the general objectives of InterPore)

The Iran InterPore is a pre-eminent professional Chapter of InterPore representing the interests and activities of Academics, Scientists, Engineers, Industrialists, and Young Scholars all over Iran that actively participate in complex problems and phenomena related to porous media. As a national organization, the Iran InterPore provides a focus for professional leadership to individual members having a broad range of expertise including “Geoscience and Geoenergy”, “Biology and medical science”, “Chemical and environmental engineering”, “Industry” and “Imaging technology in porous media” and “Chemistry”.

### Chapter Chair:

Name: Dr. Mozhdeh Sajjadi, Assistant Professor

Affiliation: School of Chemical Engineering, College of Engineering, University of Tehran

Email: Sajjadi.mozhdeh@ut.ac.ir

Telephone: +98-(21)

Date of election: Aug 19, 2025

**Date of the last steering committee meeting: October 8, 2025 (biweekly)**

### Chapter Officers:

Name	Affiliation	Role
1. Dr. Fahimeh Hooriabad Saboor	University of Mohaghegh Ardabili	Vice-Chair
2. Ir. Davoov Zivar	University of Alberta	Executive Officer
3. To be re-assigned		Director of Social Networks
1. Dr. Hosseininasab	University of Science and Technology	Director of Events
2. Dr. Mojgan Zendehtdel	Arak University	Communication Officer
3. To be re-assigned		Awards & Prizes
4. To be re-assigned		Website & IT

**Succession planning:** *(National Chapters are reviewed on a 3-year basis. Describe (in 100-150 words) plans for continuation or discontinuation of the committee, any proposed changes in the technical topic, chairs, co-chairs, and membership or direction of activities. The InterPore board reviews and approves all renewals of National Chapters.)*

Following the recent election, a new executive committee has been appointed. Our central objective for the upcoming year is to broaden the organization's interdisciplinary scope by connecting with researchers across diverse fields related to porous media. We have already shortlisted candidates to be invited to the committee gradually. We anticipate that the forthcoming national chapter meeting will provide a pivotal opportunity to attract active new members and cultivate a program of continuous engagement.

**Legal status:** *(for instance: is the Chapter officially registered in your country?)* *No, it is not.*

**Number of members at the date of the report:** *(by category: academic, student, industrial)*

- *439 members in our LinkedIn network,*
- *353 members in our Telegram virtual platform,*
- *792 members in total.*

**Financial information:** *(Provide a brief summary of financial situation: income and expenses, grants, membership fees, financial return from conferences and/or workshops organization...).*

*Does the chapter maintain a bank account? If so, who is in charge of it? After successful organization of the 1<sup>st</sup> Iran InterPore Conference on Porous Media in September 2024, we have €1000 deposited in the chapter account. The money is still in our account. We will spend it carefully for next events.*

**Activities:** *(List the technical activities during the past year and provide a 50-150 word description of them including purpose/goal of activity, number of participants, presentations, measure of impact and success of activity, etc. List activities performed as a group or promoted as an InterPore National Chapter event (technical sessions/workshop held at InterPore annual meeting or other symposia, field trips, workshops, webinars, training courses, study group meetings...), )*

1. *Award ceremony for the winners of the Best Student Presentation and the Photo Contest on Porous Media held in March 2025*



2. Organizing two webinars, by Prof. Vahid Niasar from Manchester University and Prof. Ghanbarian from Texas University

**InterPore Chapter**

**Lecture Series:**

**Prof. Vahid Niasar**  
 Chair of Subsurface Engineering and Porous Media Physics,  
 Department of Chemical Engineering,  
 University of Manchester, UK

**Non-classical dispersion in porous media: from non-ideality of gases to non-Newtonian fluids**

**Abstract:** This presentation examines the definition of dispersivity in porous media and argues that it requires revision, as the existing literature predominantly focuses on Newtonian fluids. The discussion is centered on two primary examples. The first investigates the mixing and dispersion of non-ideal gases in porous media, specifically in the context of underground hydrogen storage and carbon gas applications. The second example explores mixing and dispersion in the flow of non-Newtonian fluids through porous media. In both cases, the presentation incorporates numerical simulations and experimental evidence to support the argument that dispersivity is not solely determined by the properties of the fluids involved. These findings emphasize the need to redefine dispersivity to account for the combined effect of porous media and fluid characteristics.

**Bio:** Vahid Niasar is a professor of subsurface engineering and porous media physics at the department of Chemical Engineering and the deputy head of research at School of Engineering. He joined the University of Manchester in 2014, after four years of experience in upstream research at Shell Global Solutions in the Netherlands. His research interests and expertise cover diverse areas of multiphase flow and reactive transport in porous media, hydrogeology and subsurface energy engineering (including geothermal energy, CO<sub>2</sub> and hydrogen storage, enhanced oil recovery), flow and transport modeling in electrochemical systems such as PEM fuel cells and redox flow batteries, flow and transport in manufactured porous media such as membranes, filters and catalysts. He is currently the president-elect of InterPore.

Research group website: [www.vahidniasar.com](http://www.vahidniasar.com)

**Monday, March 3, 2025**  
 16:00 - 17:30 Iran Time (UTC + 03:30)  
<https://v.sharif.edu/chi/interpore>

**Milad Desert Springs, Sari, Iran**

**InterPore Chapter**

**Iranian Geotechnical Society**

**TC106 Unsaturated Soils**

**Lecture Series:**

**Dr. Behzad Ghanbarian**  
 Associate Professor,  
 Department of Earth & Environmental Sciences,  
 University of Texas at Arlington

**Data-Driven Insights into Porous Media: The Role of Databases and Sample Size in Machine Learning Models**

**Abstract:** Applications of machine learning (ML) to porous media have opened new paths and shed lights on better modeling complex transport phenomena and more accurate predicting them across scales from pore to reservoir. However, the performance and generalizability of ML-based models heavily depend on the quality and quantity of underlying data. We should therefore explore the critical interplay between database characteristics and ML model predictions. We discuss challenges associated with data collection and heterogeneity in porous media applications, as well as the impact of sample size on ML model robustness and predictive accuracy. Through two case studies, we first demonstrate the database-dependent reliability of ML models in the estimation of oil and gas recovery factors at the reservoir scale and exploration stage. We strongly recommend that before one uses conventional ML models, statistical tests should be conducted to investigate whether the distributions of input features in training datasets are statistically similar to those in a new database for which of us gas recovery factor estimations are desired. We need address the number of samples and data heterogeneity (or diversity). We show that even a large database including nearly 20,000 samples may not be large enough. We will address this issue of representative number of samples by highlighting the either bearing size or representative sample size analysis is essential to train reliable ML models.

**Bio:** Behzad Ghanbarian is an Associate Professor at the Department of Earth and Environmental Sciences, University of Texas at Arlington. He is the author of more than 126 peer-reviewed journal articles and three books. His research interests cover a wide range of interdisciplinary topics, such as climate change, environmental remediation, spalling techniques, and fluid flow and contaminant transport in heterogeneous porous media. He is a member of AGU, IAGLR and IIR and received the 2015 Donald L. Turcott Award in nonlinear geophysics from the American Geophysical Union as well as the 2022 Soil Physics and Hydrology Division Early Career Award from the Soil Science Society of America. Behzad was also listed among the top 206 of scientists in the world between 2018 and 2024.

**Sunday, February 2, 2025**  
 16:00 - 17:30 Iran Time (UTC + 03:30)  
<https://v.sharif.edu/chi/coengc-webinar>

**Lipar Lagoon, Chabahar, Iran**

3. Organizing a technical talk by young scholar Mr. Milad Khashay in TTT format,

**Milad Khashay** • 1st  
 M.Sc of Petroleum Production | CCUS Researcher  
 4mo •

I'm excited to share that I will be presenting my research at the Iran InterPore Chapter event!

In this work, we used micromodel experiments to visualize and analyze salt precipitation during gas injection into saline aquifers. The findings offer new insights into how salt formation can impair the injectivity in gas storage and CCS applications.

**Salt Precipitation Formation During CO<sub>2</sub> Injection**

**Under Aquifer Conditions: A Micromodel Study**

4. Inviting new steering committee members is being conducted in an organized gradual manner to let the group and the new members get to know the goals and spirit of interpore

organization. Our newest member is Dr. Mojgan Zendehtel from Arak University who is the chair of Zeolite organization. Dr. Zendehtel has been actively helping the steering committee in recruiting new members for group membership application and has very useful connections with researches in the field of Chemistry.

5. Collaboration in organization of the 10<sup>th</sup> Zeolite conference in August 2025.



6. Planning and organizing **26 steering committee sessions** every other week. Our steering committee includes ladies and gentlemen: **Hassan Mahani, Mozhdeh Sajjadi, Fahimeh Saboor, Davood Zivar, Hossein Ghadiri, Alireza Bazargan, Saeid Sadeghnejad, Jafar Qajar, Ehasan Nikooee, Hamed Sadeghi, Mojgan Zendehtel, and Seyed Mojtaba Hosseini-Nasab.**

**Student Affairs Committee in your National Chapter:** Is there a Student Affairs Committee in your National Chapter? What is the role of Student Affairs? Please, add comments about possible new actions which would lead to having student-focused activities and events at the national level.

Following our recent conference, we have been successful in creation of a Student Organization Committee. To make this organization more active we are planning for regular talks and presentations in the form of tea time talks, and plan for student contests in the next chapter meeting.

**Goals for the current year:** *(Describe your Chapter's goal for this year and what progress was made in 100-200 words)*

This year's plans included:

1. Activation of our National Group Membership for 35 selected nominates,

We were able to apply for and activate the group membership with a group of 15 people, out of which 12 people were new members.

2. **Defining a mechanism** for election of key steering committee members.

The bylaw of Iran Interpore Chapter has been prepared in the steering committee sessions and the mechanisms of inviting new members and election of key steering committee members have been clearly stated in the bylaw.

3. **Publication of the special issue containing top papers of our recent conference in the *InterPore Journal*,**

The top papers presented in the conference have been nominated for publication. The minimum number of papers for publication of a special issue of the journal have been met in the past week. Four papers so far have gone through a peer review and were accepted. The final manuscripts are under review. We hope that the issue will be ready for publication in the near future.

4. **Invitation of the Kimberly-Clark Distinguished Lecturer 2025 Professor Lyesse Laloui.**  
We have sent emails to Dr. Laloui and invited them to give online and in-person lectures in Iran.

**Goals for the coming years:** *(Describe what goals have been established for coming years in about 100 words, indicate new propositions and planned activities for next year)*

Our primary goals for the coming years focus on strategic growth and sustainability. A key new initiative is the active **recruitment of young scholars through targeted invitations to present in our TTT series and engage in collaborative projects**, fostering the next generation of leadership. We are committed to **expanding the Iran Interpore community both quantitatively and qualitatively**, increasing our membership while enhancing the value we provide. To solidify our presence, we will officially **register the chapter in Iran** and are already planning to **host our National Chapter Meeting in 2026**, which will serve as a cornerstone event for community building and scientific exchange.

**Communication:** *(How often and in what form does your National Chapter communicate with members (email, social media, website)?)*

We have arranged majority of our meetings online on a biweekly basis. We occasionally met in person during the last year.

**Chapter membership:** *(Do you review membership periodically? Do you have a plan for new member recruitment, member retention, student involvement, etc?)*

Yes, we have a proactive and multi-faceted approach to membership. A key strategic priority is engaging the next generation, which is why we focus on recruiting young students and recent graduates into our Executive Committee. Simultaneously, we actively appoint enthusiastic early-career faculty to our Steering Committee to inject fresh perspectives.

To ensure effective integration, we are implementing a phased onboarding process. For instance, we are currently inviting three new members to join the Steering Committee over a six-month

period. This allows new members to gradually familiarize themselves with the organization's priorities and culture.

Looking outward, we are launching an outreach initiative to universities and research institutes across Iran. The goal is to introduce InterPore Iran, invite researchers from diverse disciplines to give technical talks, and thereby sustain regular scientific activities. This platform also serves as a vital channel for identifying and cultivating future leaders for our organization

**Appendix:** *(If needed, please place any additional information that you feel is pertinent to the future review of your National Chapter in this Appendix. Please, add you might also add comments and suggestions on how to improve communication between the National InterPore Chapters and InterPore Executive Committee).*