





# **AUT - DFG**

**Joint Matchmaking Webinar** 

**April 2021** 

**Iman Chitsaz** 

Assistant Prof., Isfahan University of Technology, Isfahan, Iran Vice-president of Iran Engine Society

#### **Projects:**

Project manager of "Hybrid Electric Vehicle" at Irankhodro Powertrain Co.

Project manager of "Benchmarking of 3 cylinder engine" at Irankhodro Powertrain Co.

Design of a coiler device for Tehran University

Investigation of spray characteristics of Diesel engine by Schlieren

PIV measurement of microalgae cultivation pond

PIV measurement of flow in optical cylinder head

Schlieren photography of spray in pharmaceutical applications

Accessory belt vibration measurements of engine by image processing technique

#### **Publications:**

https://scholar.google.com/citations?user=5ljvKqsAAAAJ&hl=en

#### **Teaching Experiences:**

More than 8 different courses in top ranked Iranian universities

### **Research Group Interest**

Hybrid electric vehicle
CNG direct injection
Catalytic convertor
Emission
Waste heat recovery
Optimization
Mixture formation and spray modeling of fuel injectors
Optical method in engineering

### **Group Research/Industrial Projects**

Cold start emission improvement of gasoline powered vehicle
Energy consumption improvement of hybrid electric vehicle
Improvement of cooling system of diesel engine
Waste heat recovery of turbocharged engine by means of ORC
Waste heat recovery of turbocharged engine by means of vortex tube
Direct injection of CNG for a SI engine

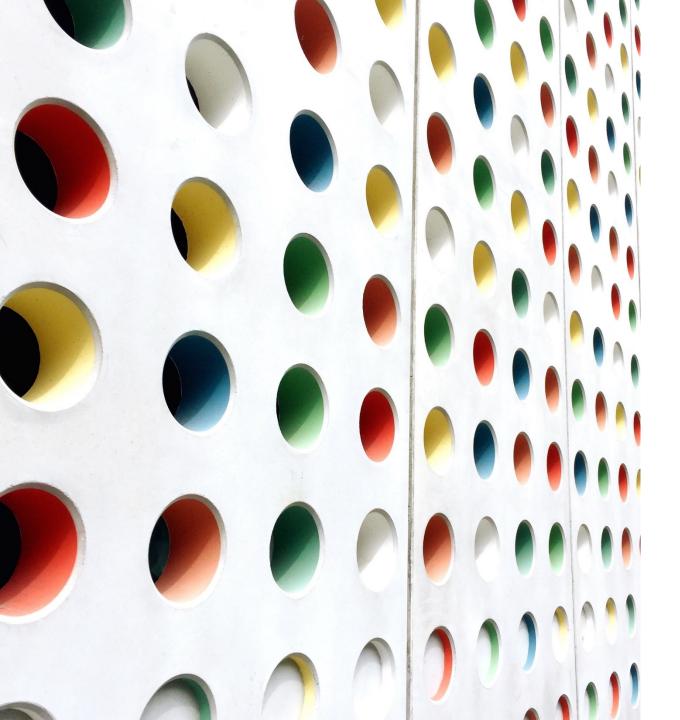
### **Group Supervised Labs**

Thermodynamics and heat transfer lab

### **Group Contact Information**

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Assistant professor
Isfahan university of technology
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### **Research Biography**

#### Amirreza Ghahremani

Dr. Amirreza Ghahremani is an assistant professor of School of Mechanical, Aerospace, and Maritime Engineering at Amirkabir University of Technology (AUT) in Tehran, Iran.

He obtained his undergraduate degree in mechanical engineering from Sharif University of Technology (SUT) in Tehran, Iran. He received MSc and PhD degrees in mechanical engineering from Sharif University of Technology (SUT), too. His PhD thesis was elected as the best thesis of the year in School of Mechanical Engineering and also won the "Best PhD Thesis of Iran" award which is held by Iranian Society of Mechanical Engineering. During his education he was recognized as a "Talented Student" due to his outstanding performance. After graduating PhD with the first rank, he started the postdoctoral fellow under support of "National Elites Foundation". Later, he was appointed to the School of Mechanical, Aerospace, and Maritime Engineering at Amirkabir University of Technology (AUT) in 2018 as an Assistant Professor.

He is a member of "National Elites Foundation" and also was appreciated by mayor of Tehran (capital of Iran). Due to his research efforts, he was awarded some grants such as "Dr. Kazemi Ashtiani" and "Dr. Chamran". He has been funded by Ministry of Science, Research, and Technology (MSRT) to establish the "Optical Measurement Techniques Laboratory (OMTL)" (2020). After establishment of OMTL he was selected as the supervisor of OMTL because of his experience and effective efforts. He has served on some conference committees and collaborated with peer reviewed journals.

His research interests are in the area of Optical Measurement, Combustion, Energy and Heat Transfer. He has collaborated actively with researchers in several other fields such as Soft Robotics, Micro/Nano Fluidics, and so on.

### **Research Interest**

My research interests are in the area of Optical Measurement, Combustion, Energy and Heat Transfer. I'm collaborating actively with researchers in several other fields such as Soft Robotics, Micro/Nano Fluidics, and so on.

### **Group Contact Information**

Amir Reza Ghahremani

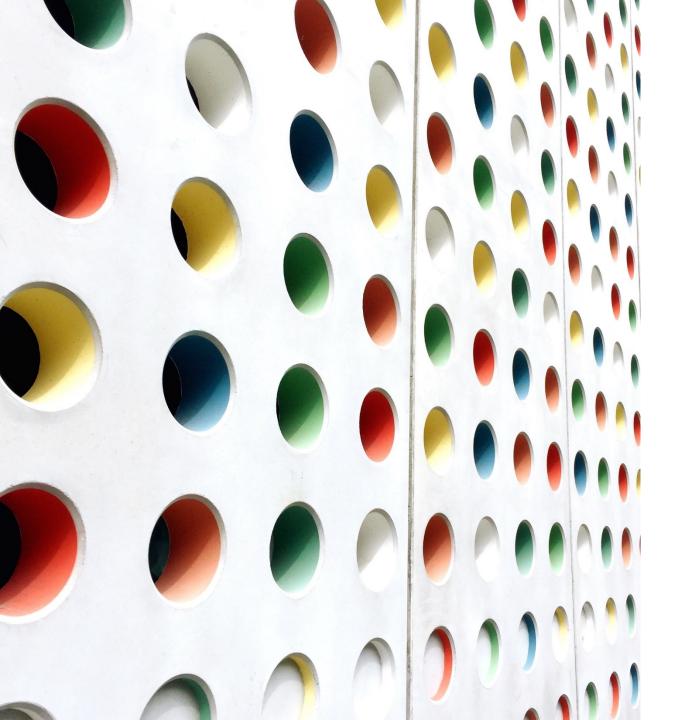
Assistant Professor in School of Mechanical, Aerospace, and Maritime Engineering.

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Address: Hafez Ave., Amirkabir University of Technology, Aerospace Engineering

Department, Tehran, Iran.







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#### Asst. Prof. Shiva Gorjian

Biosystems Eng. Dep., Faculty of Agriculture

Renewable Energy Dep., Faculty of Interdisciplinary Science & Technology

TARBIAT MODARES UNIVERSITY (TMU)

Jala-Al-Ahmad Highway:: Tehran:: Iran LinkedIn, GoogleScholar, HomePage

Tel: + 98 (21)48292303 | Email: Gorjian@modares.ac.ir

Book: <u>Photovoltaic Solar Energy Conversion</u> Special Issue (Elsevier): <u>AgroRenewables</u>

Special Issue (MDPI): Sustainability

https://scholar.google.com/citations?user=qFIprQIA AAAJ&hl=en

#### WORK EXPERIANCES

Assistant Professor, Biosystems Engineering Department, Tarbiat Modares University (TMU) (2016-Continioued).

Guest Professor, Interdisciplinary Science and Technology Faculty, Tarbiat Modares University (TMU) (2018-Continioued).

Vice-chancellor of the "Renewable Energy Research Institute-RERI", Tarbiat Modares University (TMU), Tehran, Iran (2018-Continioued).

Visiting Researcher, Leibniz Institute for Agricultural Engineering and Bioeconomy (ATB), Potsdam, Germany (August 2019-March 2020).

Sessional Lecturer, Biosystems Engineering Department, Tarbiat Modares University (TMU) (2014-2016).

Postdoctoral Research Fellow, Renewable Energy Research Institute (RERI), Tarbiat Modares University, Tehran, Iran (2014-2016).

Guest Editor, Journal of Sustainability, MDPI, 2021. "Adoption of Renewable Energy Technologies (RETs) to Achieve Sustainability".

Managing Guest Editor (MGE), Journal of Sustainable Energy Technologies and Assessments (SETA), Elsevier, 2020. Special Issue: Feasibility, Efficiency and Sustainability of Renewable Energy Applications in Agriculture (Agrorenewables).

Reviewer of the "Journal of Renewable Energy" (Published by Elsevier).

Reviewer of the "Journal of Solar Energy" (Published by Elsevier).

Reviewer of the Journal of "Agricultural Machinery", Ferdowsi University of Mashhad, Mashhad, Iran.

Reviewer of the "Journal of Renewable Energy and Environment-JREE" (Published by Iran's Materials and Energy Research Center (MERC), Tehran, Iran.

Reviewer of the "Iran National Science Foundation", Science and Technology Vice Presidency, Tehran, Iran.

Reviewer of the Journal of Computational & Applied Research in Mechanical Engineering (JCARME) (Published by Shahid Rajaee Teacher Training University, Tehran, Iran.)

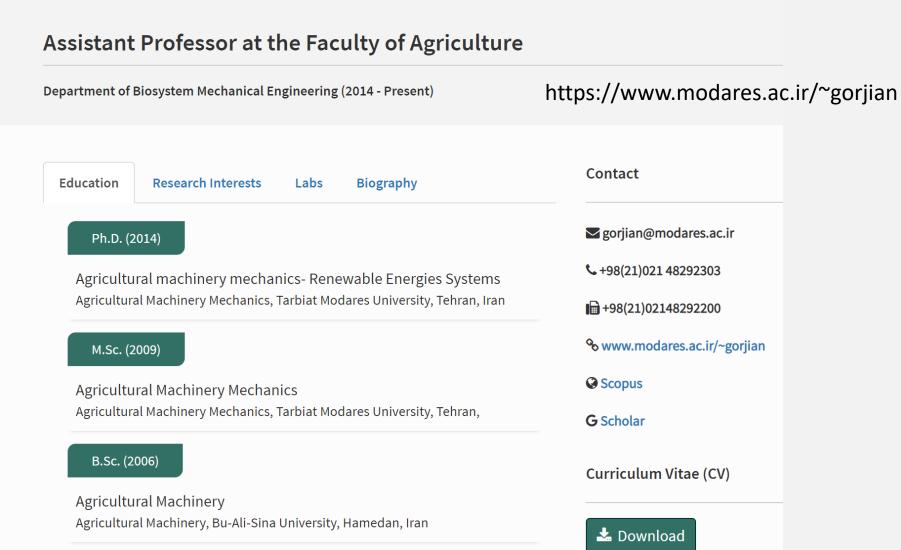
Member of Iran's "Renewable Energy Technology Development Council", Tehran, Iran.

Member of Iran's "Biosystems Engineering Association".

Member of "Solar Energy Association of Iran".

Member of "Renewable Energy Association of Iran".





**April 2021** 

**Guest Speaker:** Vertical Diffusion Solar Stills: Technology and Developments. International Conference on Smart Advanced Material Science & Engineering Applications. Department of Physics, K.L.E.F., Guntur, Andhra Pradesh, India. Affiliation: K L University (2020).

**Specialized Workshop:** Applications of Photovoltaic Solar Energy Technology in Agricultural Sector. Ministry of Energy, Renewable Energy, and Energy Efficiency Organization (SATBA), Tehran, Iran (2020).

**Inviter Talk:** Applications of Solar Energy Technologies in Agricultural Operations; in GUJCUST-DST sponsored Webinar "Solar Energy Application in Present Era", Mechanical Engineering Department, Government Engineering College Patan, India (2020).

**Keynote Speech** on "Emergence of Photovoltaic Solar Technology and Its Role to Achieve Sustainability in Agriculture", *International Conference of Energy, Environment, and Health Engineering* (EEH2020), UK.

**International Seminar** on "International Seminar on Photovoltaic Thermal Hybrid Solar Collectors; Principles and Techniques", University in Guntur, India (2020).

Plenary talk on "Point-focus Concentrating Solar Power Generation: Challenges and Prospects", Innovative Applied Energy (IAPE, 2019). Oxford city, United Kingdom.

**Lecture** on "Solar Thermal Desalination Systems" in Professional Seminar of "Unconventional Water Recourses, Challenges and Opportunities", Iran's Organization of Country's Water Resources Management (2018).

**Plenary talk** on "Solar Thermal Desalination Systems: Challenges and Prospects", Renewable and Sustainable Energy: Sustaining Sustainable Energies for Sustained Growth, Paris, France (2018).

Lecture on "Food, Water and Energy Nexus", Seminar Organized by SERA, an NGO of Environment Conservation, Rasht, Iran (2018).

Workshop on "Mendeley Reference Manager" (2017), Tarbiat Modares University, Tehran, Iran.

Trainer of the Renewable Energy and Energy Efficiency and PV Business Development programs, by the Renewables Academy AG (RENAC), based in Berlin, Germany.

Trainer of the "Introduction to power systems" online programme, by the Renewables Academy AG (RENAC), based in Berlin, Germany.

### Workshops and Presentations

#### **Books**

Gorjian, Sh., Elia Campana, P, (2021)- Solar energy advancements in agriculture and food production systems. Elsevier, (Accepted Proposal).

Gorjian, Sh., Shukla, A (2020). Photovoltaic Solar Energy Conversion: Technologies, Applications and Environmental Impacts. Elsevier. 462 pages. ISBN: 978-0-12-819610-6.

Esmaeili Shayan, M., Najafi, Gh., Gorjian, Sh (2020). Design Principles and Applications of Solar Power Systems (In Persian). CECR Publication, Amirkabir University of Technology Branch. ISBN: 978-964-210-321-8.

#### **Book chapters**

Gorjian, Sh., Ebadi, H. Introduction (2020). In book: Photovoltaic Solar Energy Conversion: Technologies, Applications and Environmental Impacts. Pages: 1-26.

Shakouri, M., Ebadi, H., Gorjian, Sh. Solar PVT Module Technologies (2020). In book: Photovoltaic Solar Energy Conversion: Technologies, Applications and Environmental Impacts. Pages: 79-116.

Gorjian, Sh., Singh, R., Shukla, A., Abdur Rehman, M (2020). On-farm applications of solar PV systems. In book: Photovoltaic Solar Energy Conversion: Technologies, Applications and Environmental Impacts. Pages: 147-190.

Gorjian, Sh., Minaei, S., Maleh Mirchegini, L., Trommsdorff, M., Shamshiri, R. (2020). Applications of Solar PV Systems in Agricultural Automation and Robotics. In book: Photovoltaic Solar Energy Conversion: Technologies, Applications and Environmental Impacts. Pages: 191-235.

Gorjian, Sh., Ghobadian, B., Ebadi, H., Ketabchi, F., Khanmohammadi, S (2020). Applications of Solar PV Systems in Desalination Technologies. In book: Photovoltaic Solar Energy Conversion: Technologies, Applications and Environmental Impacts. Pages: 237-274.

Bake, M., Shukla, A., Liu, Sh., Agrawal, A., and Gorijan, Sh. Comparative Assessment on the Use of Energy Storage in the Building Envelopes: A Review (2020). In Book: Low Carbon Energy Supply Technologies and Systems. Edition: 1st. CRC Press-Taylor & Francis Group. 326 pages.

# Books and Book Chapters

### **Research Group Interest**

#### FIELDS OF INTEREST

- Renewable Energy Applications in Agriculture (AgroRenewables).
- Solar Photovoltaics (PV);
- Solar Thermal Photovoltaics (PVT);
- Solar Desalination, Water Purification Technologies, Drinking Water Quality.
- Solar Greenhouses, Solar Dryers, Agrophotovoltaic (APV).
- Modeling and Simulation of Energy Systems.
- Energy and Exergy Analysis.

### **Group Research/Industrial Projects**

#### PROJECTS

Design and Development of a Hybrid MED-RO Desalination System Using a Solar CHP System to Produce Drinking Water. Under Financial Support of the "Semnan Regional Water Company". Completed in 2019.

Development of a Solar Powered Membrane Capacitive Deionization System (Under Financial Support of Iran National Science Foundation, PI: Shiva Gorjian)- In Progress

Development of a Stand-Alone Spray-Assisted Solar Thermal Desalination System (a joint work between Iran and India, PI: Shiva Gorjian)- Completed in 2020.

### **Group Supervised Labs**



Research Groups

Research Unit

Biomass & Bioenergy

Research Affairs

Development of Clean Energy Technologies

Library and Information Center





Flexible Fuels Systems



### **Group Contact Information**

Tarbiat Modares University (T.M.U.) | Jalal Al-Ahmad Highway, Tehran, Iran.

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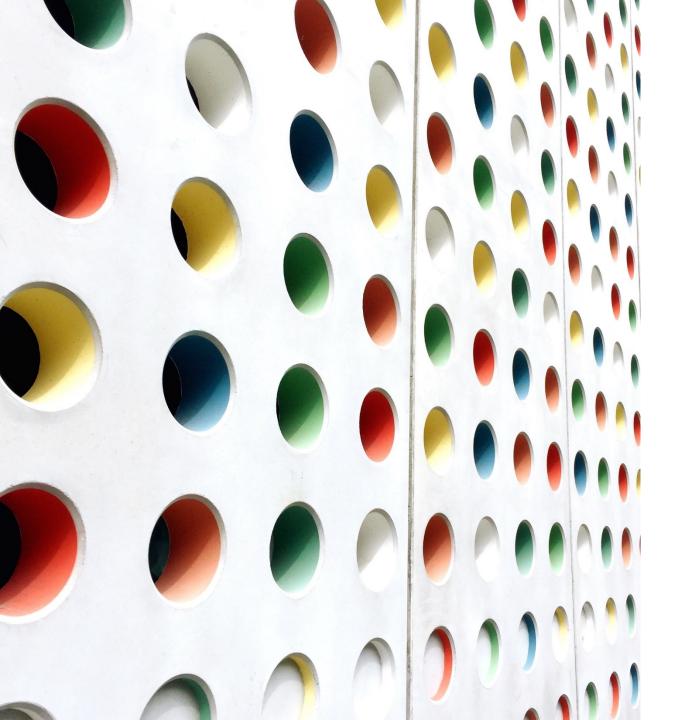
**Mobile:** +98 918 817 1769

Email: Gorjian@modares.ac.ir, Shgorjian@yahoo.com

https://scholar.google.com/citations?user=qFIprQIAAAAJ&hl=en

https://www.researchgate.net/profile/Shiva\_Gorjian

https://www.linkedin.com/in/shivagorjian/







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> Parichehr Hanachi ( Associate professor)

Faculty of Biology Science, Alzahra University

Published Books: 5

Publication in Local & International Journals: 195

Publication in Conference Proceeding: 143

Supervision of students (Ph.D and Master Program): 51

Supervisor for Undergraduates: 10

Scopus *h*-index: **15** 

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> Zahra adibi (master position)

Microbial Biotechnology student, Alzahra University

#### Zahra Adibi

#### Certifications

- A member of Health Biotechnology community in Iran
- A member of biotechnology and stem cell community in Alzahra University
- Olympiad of Biology in Iran
- A review paper in field of NanoBioSensors
- Atendee of international BioTechnology Congress
- Atendee at of tissue engineering and regenerative medicine professional meeting
- Atendee of Bionic workshop

#### Contact

Phone:

989120068804

Email:

Zahraadibi@yahoo.com

#### Languages

Persian English Arabic

#### Education

Highschool: Farzanegan 1 (national organization for development of Exceptional Talents)

Bachelor of Science:

biotechnology - Alzahra university - Tehran

#### Summary

A 22 YEARS old, biotechnology student with a bachelor degree focused on biotechnology and Biological Sciences. Experienced in fields including : stem cell culture and differentiation , genetic engineering, gene cloning, transfection, genetic manipulation. Highly skilled in molecular biology techniques. Have Work Experience as a Research assistant in cell & genetics & enzymes and bioinformatics related areas .

#### Skill Highlights

- PCR
- Blotting
- FISH & CGH array
- Bacteria/ cell culture
- Choromatography Macromolecules Probing
- Self Disciplined
- Creative/ critical thinking

#### Experience

#### **Educational Consultant**

Tazkie Highschool (October 2016- june 2017), tehran

helping students in biological fields by answering their questions and teaching them how to study efficiently.

#### Trainee and Lab assistant-

Shahid Beheshti Research Center (October 2017- july 2018)

my researches were focused On bacteria related researches, genetically modifying them and analysis changes in antibiotics sensitivity and resistance, pestiferous and other genetic mutations after a succession of cultivations

#### CoFounder and chief scientific officer (January 2018- June 2018)

· Working part time on my knowledge based Start Up in field of in health

#### Trainee and lab assistant

Pastuer Institute of Iran in Regenerative medicine and Biomedical innovations Laboratory (july 2018 – January 2019), tehran

- Working in areas related to Stem Cell cultivation and differentiation with different cultures like DMEM, RPMI.
- Differentiate fibroblasts and faced with teratomas. iPSCs and tissue specific cells and Mesenchymal stem cells.
- making solutions, cultures and MEF by myself.

#### Researcher

#### Alzahra University Laboratory (September 2018 – June 2019)

- extraction and purification of recombinant Reverse Transcriptase enzyme as my bachelor Thesis.
- Working with Ecolie BL21, Ecolie DH5a, PET 28 vector, T7 lac promotor,

#### Researcher Alzahra University Laboratory (Aguste 2019 - january 2020)

I start working in R&D Of a Company in the field of synthetic food on yeast and soy bean protein extraction . I do research on different types of enzymes and

### **Research Group Interest**



- 1. Green nanobiotechnology
- 2. Plant biotechnology
- 3. Aquatic toxicology
- 4. <u>Biodiversity of pollution</u>
- 5. <u>Health and Antioxidants</u>
- 6. Herbal medicine and disease

### **Group Research/Industrial Projects**



- 1. Synthesis of silver and iron nanoparticles with *Scutellaria multicaulis* shoot extract, phytochemical screening and evaluation of biological activities
- 2. Potential usage of Rosmary and peppermint essential oils in aromatherapy and hair growth

### **Group Supervised Labs**



- 1. Biochemistry Lab
- 2. Industrial Microbiology Lab
- 3. Genetics Lab



### **Group Contact Information**



Department of Biotechnology, Faculty of Biological Sciences, Deh Vanak St., Al-Zahra University, Tehran

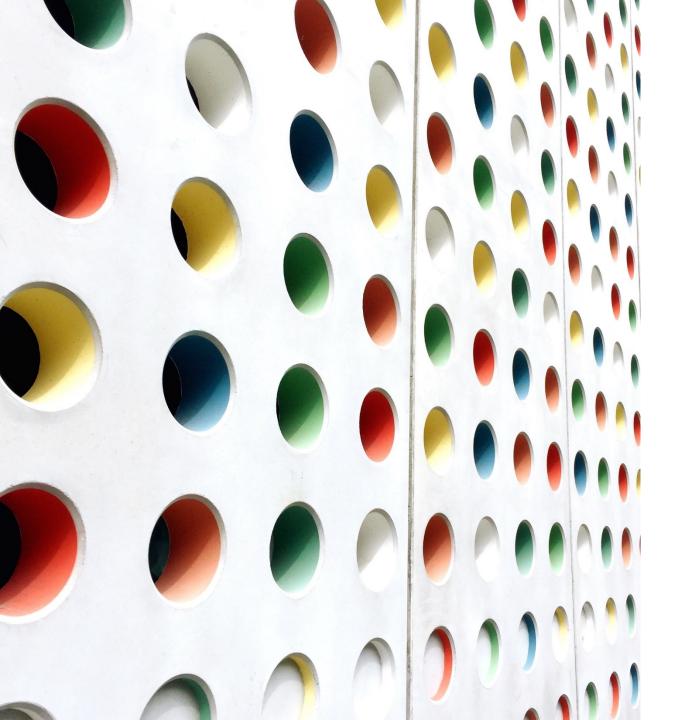
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- PI: Dr. Sayed Alireza Hosseinzadeh Hejazi, Department of Chemical Engineering, Amirkabir University of Technology, Ph.D. in Chemical Engineering from University of Alberta, Canada (2017)
- International collaborators: Dr. Ronny Pini (Imperial College London), Dr. Arvind Rajendran (University of Alberta), Dr. Ashwin Kumar Rajagopalan (Imperial College London)
- Current MSc students: Massoud Nouri, Azin Vahidi, Ashkan Rajabi, Fatemeh Moradi, Zahra Vahidipour,
   Mohammad Jahanbin, Hossein Dehghan

### **Research Group Interest**

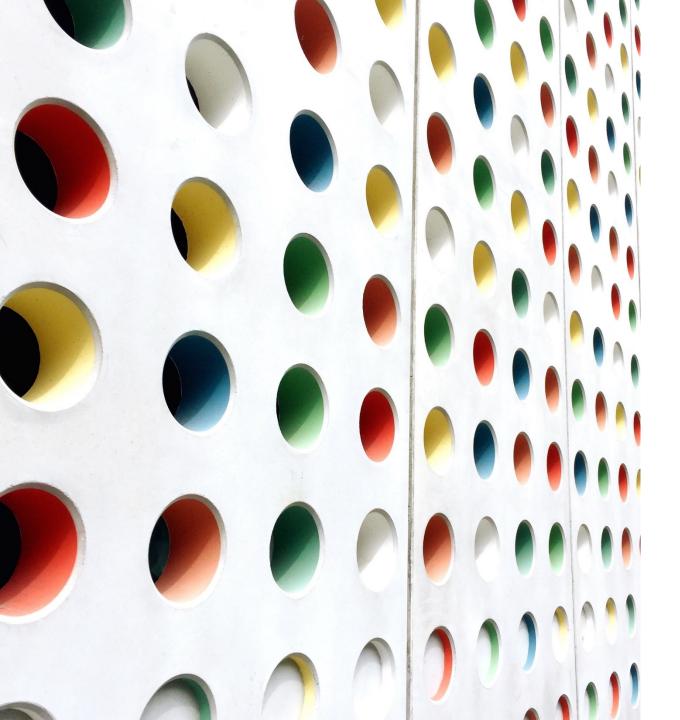
- Adsorption separation processes
- Carbon capture and storage
- Flow through porous media
- Gas separation
- Multi-phase flow

### **Group Research/Industrial Projects**

- Adsorption separation process design and optimization
- Natural gas treatment using adsorption separation processes
- Oxygen purification using pressure/vacuum swing adsorption (PVSA)
- Hydrogen production using pressure/vacuum swing adsorption (PVSA)
- Adsorption equilibrium and dynamic imaging using X-ray computed tomography
- Multi-phase flow through porous media for carbon dioxide storage in geological formations
- Machine learning assisted optimization of adsorption separation processes for carbon capture

### **Group Contact Information**

- Email: <u>a.Hejazi@aut.ac.ir</u>
- Phone: +982164543192
- Website: <a href="https://aut.ac.ir/cv/21255/Sayed%20Alireza%20Hosseinzadeh%20Hejazi">https://aut.ac.ir/cv/21255/Sayed%20Alireza%20Hosseinzadeh%20Hejazi</a>







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I am graduated from University of Vienna in 2015 in the filed of GIS and Remote Sensing.

Since 2015 I am a member of Geography department in Ferdowsi University of Mashhad.

In our department we have many education and research fields include: Geomorphology, Geography and Tourism Planning, Climatology, Geography and Urban Planning, Geography and rural planning and Political geography which I have collaborations with them.

### **Research Group Interest**

Based on broad research possibilities in our department, my research interest are:

Land cover/land use change

Natural hazards (floods, landslide, ...)

UAV and Drones applications

Renewable energies

Applied GIS and Remote Sensing and spatial analysis (urban planning, geomorphology, tourism, biodiversity, climate, rural planning, political geography, passive defense and ....)

### **Group Research/Industrial Projects**

- Project Leader (2020-2021) Re-engineering wet waste collection processes with an emphasis on service pricing.
- Project Leader (2019-2021) Spatial planning of public libraries in Khorasan Razavi province.
- Researcher (2018-2019) GIS in Khorasan Razavi Province. National Aerospace Center.
- Researcher (2009) Site Selection Based on Passive Defense in Iran, University of Malek Ashtar, Tehran.
- Project Leader (2009) Passive Defense Spatial Zoning in Iran, University of Malek Ashtar, Tehran

### **Group Supervised Labs**

Supervisor: Current MSc students: 2 students in geomorphology; 1 in Tourism.

Graduated Master students: 9

Current PhD students: 3

Adviser of Postdoctoral researcher: 3 open position.

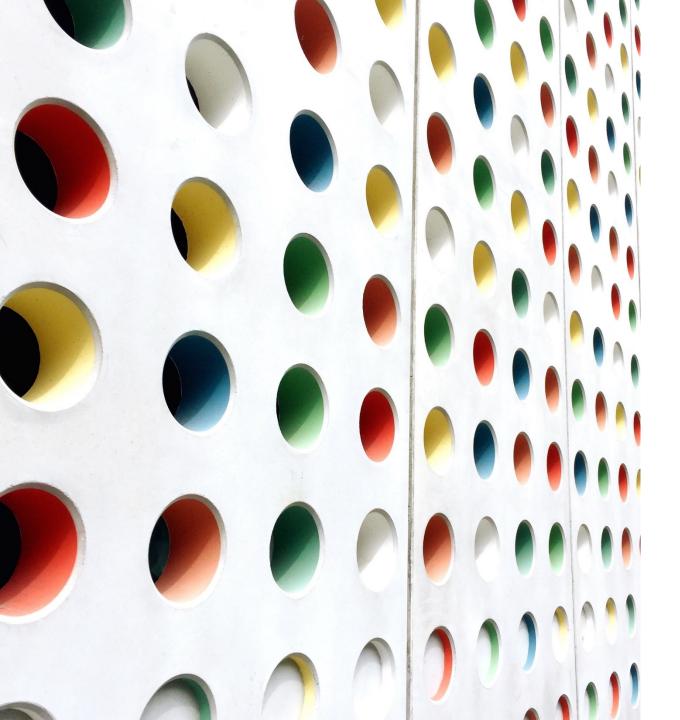
## **Group Contact Information**

Masoud Minaei
Department of Geography
Faculty of Letters and Humanities
Ferdowsi University of Mashhad
Mashhad, Khorasan-Razavi Province

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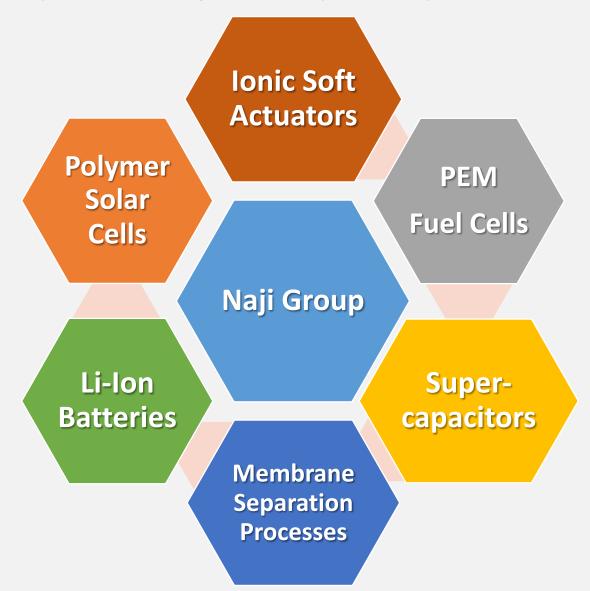




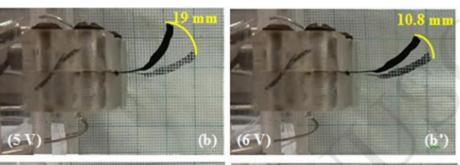


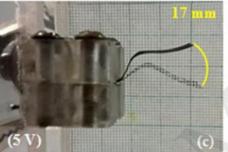
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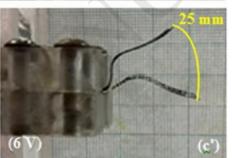
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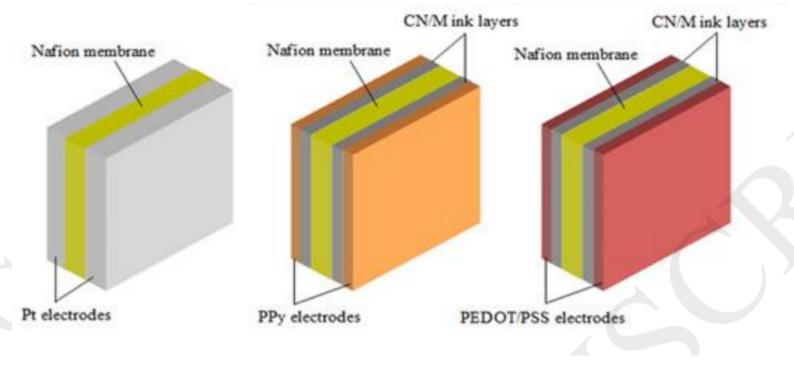






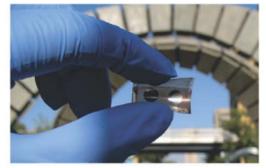


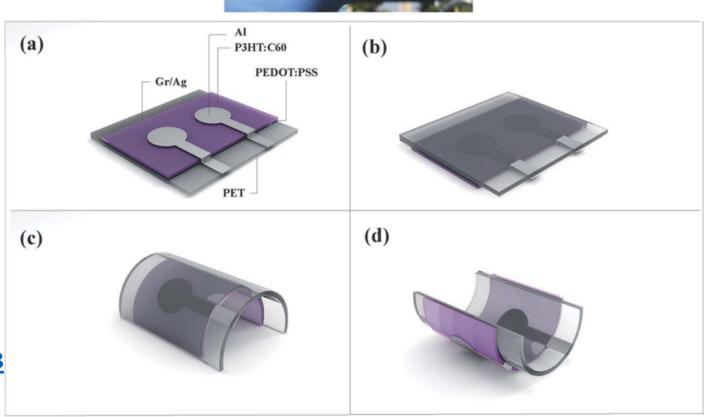




https://doi.org/10.1016/j.sna.2018.05.041

Polymer Solar Cells

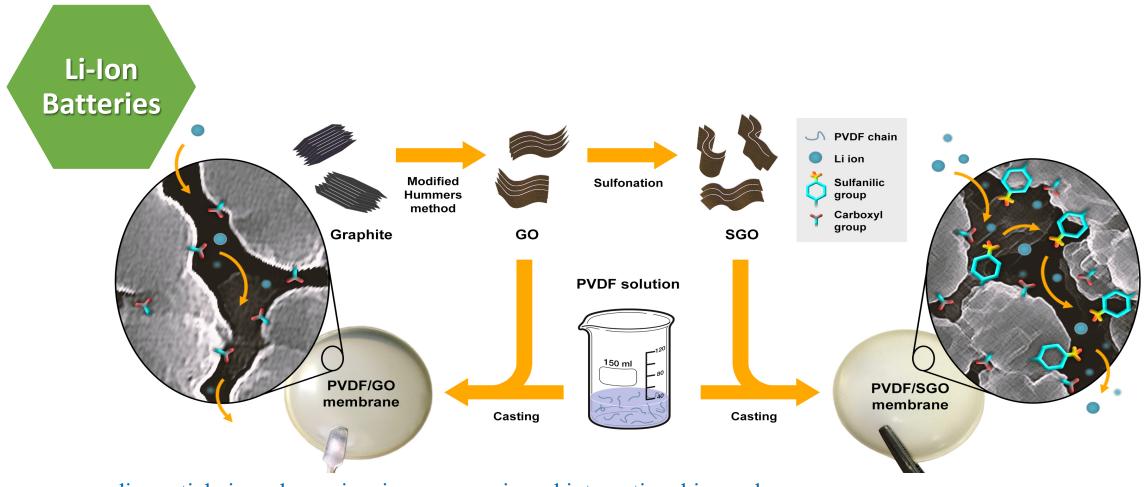




https://doi.org/10.1039/C5RA00057B

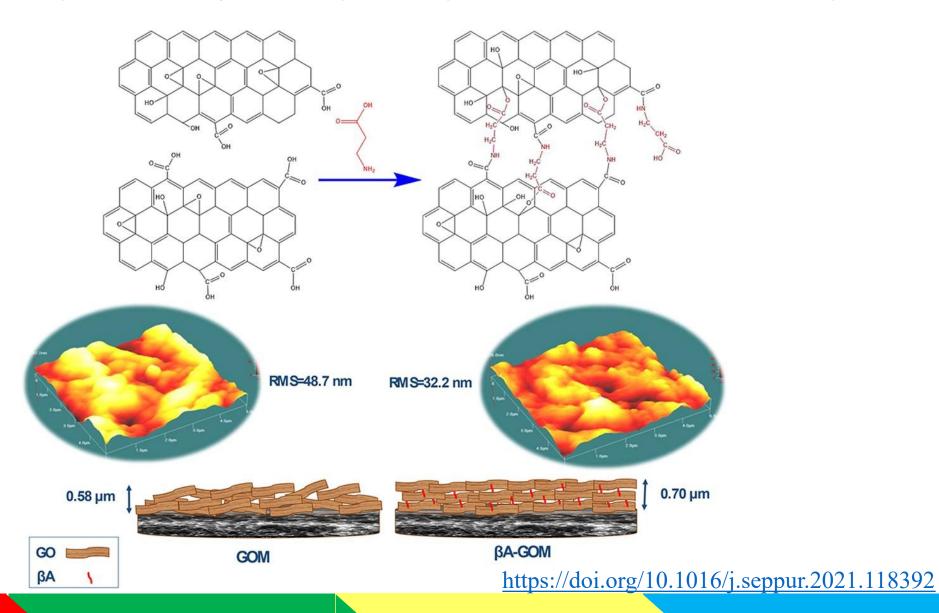
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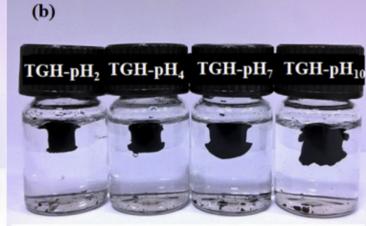
The corresponding article is under review in a peer-reviewed international journal

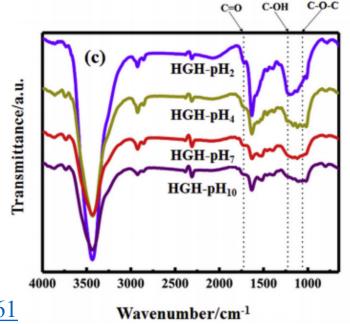
Membrane Separation Processes

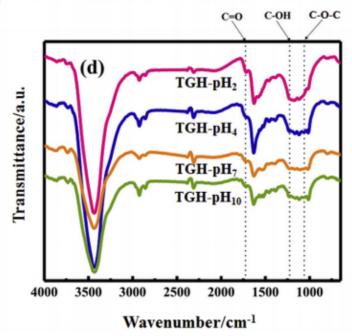


Supercapacitors



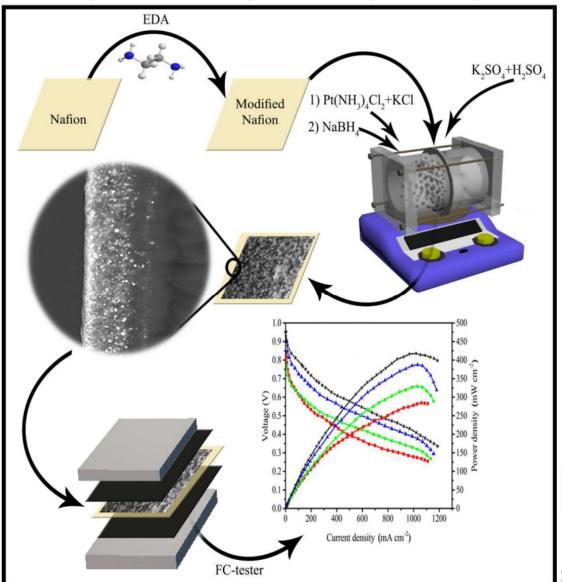






https://doi.org/10.1016/j.electacta.2019.01.161

PEM Fuel Cells



https://doi.org/10.1021/acs.iecr.7b03647

//doi.org/10.1016/j.surfin.2021.100925

### **Research Grants**

- Iran National Science Foundation (INSF) grant for the project of "Preparation and investigation of polyvinylidene fluoride/ functionalized graphene oxide based cation-exchange membranes for application in the electrodialysis process", Contract No.: 99017727, 2021.
- Iran National Science Foundation (INSF) grant for the project of "Study and optimization of electromechanical behavior of ionic polymer-metal nanocomposites (IPMNCs) for the design of mechanical robotic forks", Contract No.: 90007836, 2013.

## **Group Contact Information**

Dr. Leila Naji, Associate Professor of Analytical Chemistry, Department of Chemistry

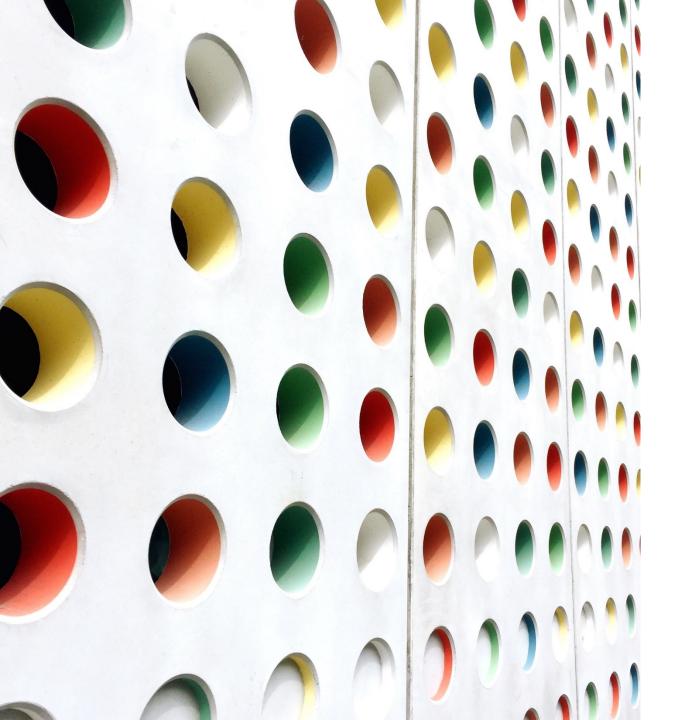
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## **Research Group CV**

Name	Educational Background and Academic Major	Organization	Specialized Knowledge and Skills
Mohammad Rahmani	Chemical Engineering, PhD, Associate Professor, Department of Chemical Engineering, Head of Water, Environment and Sustainable Development Institute	Amirkabir University of Technology	<ul> <li>Process Modeling and Simulation</li> <li>Applied Numerical Methods in Chemical Engineering</li> <li>Programming in various languages (Fortran, Python, C++,)</li> <li>Neural Networks, Machine learning</li> </ul>
Saeid Atashrouz	Chemical Engineering, PhD student	Amirkabir University of Technology	<ul><li>Programming (Python, matlab)</li><li>Modeling and Simulation</li><li>Neural Networks, Machine learning</li></ul>
Shabnam Shahhoseyni	Chemical Engineering, PhD student	Amirkabir University of Technology	<ul><li>Programming (Python, matlab)</li><li>Neural Networks</li></ul>
Khashayar Salehi	Chemical Engineering, Msc student	Amirkabir University of Technology	<ul> <li>Programming (Python, matlab)</li> <li>Modeling and Simulation</li> <li>Neural Networks, Machine learning</li> </ul>

## **Research Group Interest**

- Artificial Intelligence Approach in Chemical Engineering
- Machine Learning
- Neural Networks
- Modeling and Simulation
- Metal-Organic Frameworks (MOFs)
- Hydrogen Storage in Metal-Organic Frameworks
- Energy Consumption in Transportation Industry

## **Group Research/Industrial Projects**

- Research Projects:
- Predicting hydrogen storage capacity of metal—organic frameworks using group method of data handling
- Al-based MIL-53 metal organic framework (MOF) as the new catalyst for Friedel–Crafts alkylation of benzene
- Prediction and Optimization of Hydrogen Storage Capacity in Metal-Organic Frameworks Using an Advanced
   QSPR-Machine Learning strategy
- Industrial Project:
- "Design and construction of an advanced photocatalytic pilot plant for waste water treatment", Bandar Imam petrochemical company (BIPC), Mahshahr, Iran, 2020.

## **Group Supervised Labs**

Clean Technology Research Laboratory

Clean-Tech is an advanced laboratory founded in Jan 2014 with the aim of the development of green processes and with main focus on waste water treatment strategies. Recently, a new branch namely Clean-Tech-AI has been added to the Clean-Tech laboratory. The main focus of this branch is to develop AI strategies to model chemical processes that utilize environmentally friendly approaches.

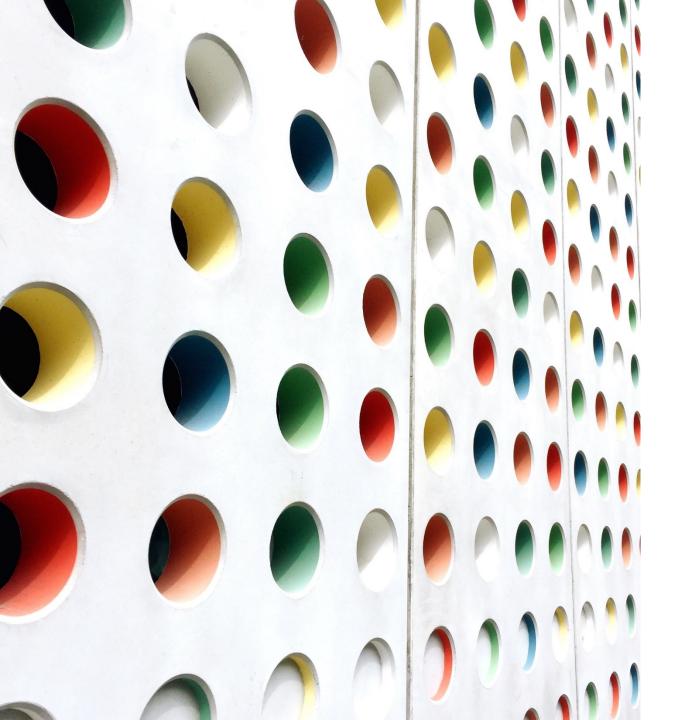
## **Group Contact Information**

Prof. Mohammad Rahmani : m.rahmani@aut.ac.ir

Saeid Atashrouz : s.atashrouz@gmail.com

Shabnam Shahhoseyni : <a href="mailto:sh.shahhoseyni@aut.ac.ir">sh.shahhoseyni@aut.ac.ir</a>

Khashayar Salehi :salehikhashayar 401@gmail.com







# **AUT - DFG**

**Joint Matchmaking Webinar** 

## **Research Group CV**

Name of Researcher	Current Affiliation	cv
Dr. Hosna Talebian	Senior Research Fellow Amirkabir University of Technology	2019-now: Adjunct Professor at AUT 2017-2019: Senior Reservoir Engineer at OIEC 2014-2017: Production technologist at PETRONAS 2011-2014: Researcher at PETRONAS research centre
Prof. Fariborz Rashidi	Amirkabir University of Technology	Professor Department of Chemical Engineering Thermokinetics & Transport Phenomena h-index (Scopus):14
PD Dr. Simona Regenspurg	Head Geoenergy 4.8.4 Geothermal Fluids Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences	2009 – present: Research Scientist / GFZ Potsdam since 2013: Teaching as guest lecturer at the Freie Universität (FU) Berlin; Department of Hydrogeology  2016: Habilitation at the Freie Universität (FU) Berlin; Department of Hydrogeology
DrIng. Guido Blöcher	Group Leader Geoenergy, 4.8.4 Geothermal Fluids Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences	<ul> <li>Jan. 2011 – now</li> <li>GeoForschungsZentrum Potsdam</li> <li>Dpt.: Reservoir Technologies</li> <li>Scientist</li> </ul>

## **Research Group Interest**

## Coupled Geochemical and Geomechanical Investigation of Carbonate Geothermal Rock to Optimize Saline Water Injection:

Water injection into carbonate geothermal or hydrocarbon reservoir has gained wide interest under the concept of enhanced geothermal systems (EGS) or enhanced oil recovery (EOR), to maximize productivity from conventional resources and to provide sustainable energy development. The need for improved understanding of injection problems such as injectivity impairment versus time, plugging of injection well and evolution of permeability and fracture conductivity has become critical to optimize injection design. Chemical interactions between the rock, injection brine and formation brine coupled with stress-induced changes in mechanical rock properties and mineral precipitation/dissolution have a major impact on reservoir mid and long-term performance. However, they remained largely unexplored due to the lack of dynamic geomechanical experiments under reservoir pressure and temperature conditions. In the present research proposal, stress dependent permeability and capillary pressure under saline water injection are studied in carbonate rock specimen from the selected geothermal reservoir at German basin, experimentally on the micro-scale and macro-scale by means of X-ray computed micro-tomography and isothermal triaxial coreflooding cell. The novelty of the present method is dynamic geomechanical property measurement under the impact of geochemical reactions during saline water coreflood injection. The method is designed to evaluate and predict the dissolution/precipitation mechanism and the consequent fine detachment and mobilization in porous media under confining stress conditions, resulting in well plugging. At the next phase, a coupled geomechanicalgeochemical simulation in micro and macro-scale will be validated based on experimental observations to examine and predict the permeability evolution in at the vicinity of the injection well. The results will assist chemical composition optimization of saline water injection for development of geothermal reservoir.

## **Group Research/Industrial Projects**

Dr. Hosna Talebian		
PD Dr. Simona Regenspurg	Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences	Section 4.8 Geoenergy 4.8.4 Geothermal Fluids
DrIng. Guido Blöcher	<ul> <li>development and applying of new simulation techniques</li> <li>development of new experimental setups to investigate geothermal reservoirs on a laboratory scale</li> <li>sustainabilty of enhanced georthermal reservoirs</li> </ul>	

## **Group Supervised Labs**

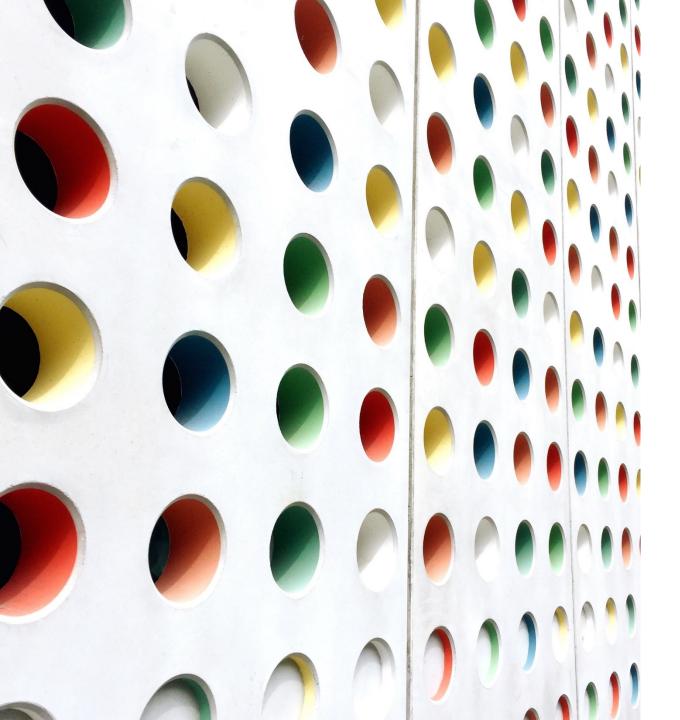
Laboratory of reservoir simulation Rock and fluid properties laboratory Fluid chemistry Laboratory Geomechanics Laboratory

## **Group Contact Information**

Name	Affiliation	Section	contacts
Dr. Ing. Hosna Talebian	Amirkabir University of Technology	Oil, gas and petroleum research centre	Email: <a href="mailto:h.talebian@aut.ac.ir">h.talebian@aut.ac.ir</a> Phone: +98-9122899057
Prof. Fariborz Rashidi	Amirkabir University of Technology	Department of Chemical Engineering	rashidi aut.ac.ir
PD Dr. Simona Regenspurg	Helmholtz Centre Potsdam GFZ German Research	Section 4.8 Geoenergy 4.8.4 Geothermal Fluids	email: regens@gfz-potsdam.de phone:+49 (0)331 288 1437
DrIng. Guido Blöcher	Centre for Geosciences	Section 4.8 Geoenergy 4.8.4 Geothermal Fluids	guido.bloecher@gfz-potsdam.de +49 331 288-1414

AUT-DFG Joint Matchmaking Webinar

April 2021







# **AUT - DFG**

**Joint Matchmaking Webinar** 

## **Research Group CV**

Please see attachment

## **Research Group Interest**

The current research interests include Optimization, Distributed Optimal Control, Electricity Market, Optimization in Energy Network, Artificial Intelligence, Machine learning and computational neuroscience.

## **Group Research/Industrial Projects**

Projects and Research Activities		
Year	Funder	Description
2019-2023	EPFL Switzerland SUDAC – swissuniversities development and cooperation network	Cluster of Cooperation between MENA and Swiss universities on Digital Education and Research
2019-2022	Iranian Ministry of Energy, West Energy Company (Iran, Tehran)	
2018-2022	Switzerland SUDAC – swissuniversities development and cooperation network	Partner of Research international Project, Title: MOOLs - Massive Open Online Laboratories.  Project Managers: Dr. Denis Gillet- Dr. Christophe Salzmann EPFL, Ecole Polytechnique Fédérale de Lausanne, Dr. Fariba Moghaddam, HES-SO/Valais - University of Applied Sciences and Arts Western Switzerland.
2019-2019	TUM- Germany	Extending distributed optimization topics in hybrid systems and its application in energy systems.

2019-2021	Iran Grid	Analysis of Iran Electricity Market Challenges
2017 2021	Management	That you of hair Diceaterly Market Charles go
	Company (IGMC)	
2019-2021	Iran water and	A MILP model and solution for Economic Assessment of
	Power Resource	Optimal Pumped Hydro Storage Capacity
	Development	
2016 2010	Company	
2016-2018	Iranian Ministry of	Manager of Research Project, Title: Design and implementation
	Energy, West	of Manipulator cleaner robot for insulator washing in H.V
	Energy Company (Iran, Tehran)	power line.
	(Iran, Toman)	
2017-2019	INSF (Iranian	Manager of Research Project, Title: Fuzzy Type 2 Identifiers
	National Science	for energy Systems
	Foundation)	
2014-2016	Iranian Oil Pipeline	Manager of Research Project, Title: Modeling of Induced
	and	currents in Oil pipelines due to nearby power lines.
	Telecommunication	
	Company (Tehran-	
	Iran)	
2013-2013	Amirkabir	Vice President of Fair, 3th International Conference of Control,
2013 2013	University of	
	Technology	
	(Tehran, Iran)	
2013-2015	National	Partner of Research Project, Title: Design and Implementation
	Petrochemical	of a BMS in a Typical Building in Petrochemical Company.
	Company,	Manager of Research Project: Dr. Heidar Ali Talebi, Amirkabir
	(Mahshahr, Iran)	University of Technology

2000-2002	Iranian Ministry of Energy, Niroo Research Center, (Iran, Tehran)	Manager of Research Project, Title: Modeling and identification of steam turbine (Shahid Rajaee Power Plant).
2001-2002	Iranian Ministry of Energy, Niroo Research Center, (Iran, Tehran)	Researcher of Research Project, Title: Modeling and identification of governor (Bisotum Power Plant).
2001-2002	Iranian Ministry of Energy, Niroo Research Center, (Iran, Tehran)	Researcher of Research Project, Title: Modeling and identification of steam turbine (Bisotun Power Plant).
2008-2010	Imam Khomeini Oil Refining Company,	Manager of Research Project, Title: Fault detection of pump in Arak oil refining company using artificial neural networks.

## **Group Supervised Labs**

Distributed Intelligent Optimization Research Lab.

Industrial Control Lab.

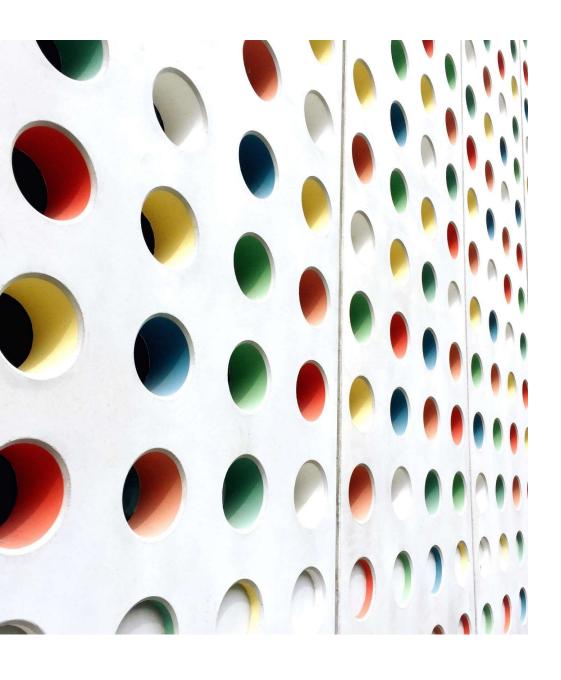
## **Group Contact Information**

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+98 912 83 55 219 (Cell phone)

+98 64 54 3309 (Office)







## **AUT - DFG**

**Joint Matchmaking Webinar** 

April 22, 2021

## Research Group: Nexus & Circularity

#### **Areas of Research Projects and Topics:**

- Circular industrial cities and industrial ecology (3 industrial cities around Tehran)
- Water-Energy-Food-Soil-Climate-sustainability Nexus & Circularity (many potential research topics)
- Mapping Paris Agreement onto circularity and circularity onto national climate plan (both in terms of NAP and NDC)
- NDC and NAP Partnerships
- Nexus Greenhouses (IOT, Carbon sequestration, Net negative carbon footprint, Minimized water footprint, maximizing productivity, reuse of TWW) Demonstration Project proposal for South Tehran Wastewater Treatment Plant



## Research Group: Nexus & Circularity

#### **Areas of Research Projects and Topics:**

- MRV (emissions, mitigation and support) of energy intensive industries (One pilot in each energy intensive industry)
- Developing a standardized and harmonized methodology for assessment of ecological foot print of life style (As a multilateral as well as regional collaborative research project)
- Lake Urmia basin rehabilitation roadmap as a pilot of transitional pathway to sustainability (demonstration project)
- ► IKI, H2021, GCF, etc. joint climate related projects



International MRV/Climate and Nexus
Lectures and Projects
with Collaboration of
Nexus & HSE Center
of
AmirKabir University Foundation
and its
International Partners

# Two Projects with German Partners before Establishment of the Nexus & HSE Center

- Green Energy Center of Iran (GECI) designed and signed when the Director of AKUF Nexus Center was the HSE Advisor to Ex-Minister of Energy with Technical University of Berlin (TUB) as the German Partner, under BMU and IKI Funds
- Climate Change Adaptation and Mitigation Capacity Development with Seconded Resident Experts on the German Side

#### **Human-made Disaster at Lake Urmia (Iran)**



**Project Period** 01.01.2020 - 31.12.2022

# Funding Institution Deutsche Forschungsgemeinschaft (DFG)

# Participating Universities University of Augsburg

University of Augsburg
University of Urmia
Nexus & Hse Center, AmirKabir University
Foundation





Environmental Change and Adaptation Strategies at Lake Urmia"

Managing Scarcity: Water Management and the Hydrosocial Cycle

#### Project Management at Augsburg University

Prof. Dr. Matthias Schmidt Robert Gonda, M.Sc. Sebastian Transiskus, M.Sc.









# Energy Indicators A MEDIS Approach

**Bahram Taheri** 

AmirKabir University, Nexus & HSE Center, AKUF Nexus Center, Niroo Research Institute (NRI)



















7



# FAO Water-Enegy-Food Webinar Series Session 5

Nexus & Sustainability in Theory and Practice:

**Examples from Iran** 

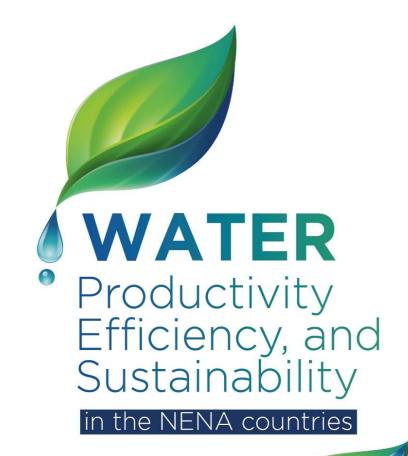
Presenters: Bahram Taheri & Roya Zargarian

Date: March 30th, 2021

http://nexuscenter.aut.ac.ir/bahramtaheri1011@yahoo.com











#### Water-Energy-Food (WEF Nexus) Under Climate Change

#### **Bahram Taheri**

Director of Nexus & HSE Center, AmirKabir University Foundation Nexus Advisor to Vice President & Head of Dept. of Environment 3<sup>rd</sup> Seminar in Climate Change and National Responsibilities

سومین نشست از مجموعه وبینارهای تغییر اقلیم و مسئولیتهای مل ۱۸-۱۹ آذر ۱۳۹۹، سازمان حفاظت محیطزیست

Dec. 9, 2020



## The Nexus Series

**Multi-dimensional Nexus Complexity** 

Dutch Shiraka Training Program
June-July 2020

Bahram Taheri July, 2020







## The Nexus Series

Measuring, Reporting and Verifying (MRV) of Natural Resources

Dutch Shiraka Training Program
June-July 2020

Bahram Taheri July, 2020





# A Primer on the Carbon and Water Footprint in our Food Consumption

The Reform Group, 23rd Energy Forum

**Bahram Taheri** 

October 18, 2019

Schloss Leopoldskron, Salzburg, Austria



# Water, Energy and Climate in the Face of Climate Change Challenges

# Inauguration of Fog Inlet Air Cooling System To Improve Energy Conversion Efficiency Shahid Rajaee Power Plant, Qazvin, Oct. 2<sup>nd</sup>, 2019

#### **Bahram Taheri**

Senior Advisor to Head of Dept. of Environment Director of Nexus and HSE Center, Amirkabir University



Director of NRI Nexus Center bahramtaheri1011@yhoo.com



# Nexus & Circularity Group members

	Committee Members From AmirKabir University of Technology (AUT)				
Name	Faculty Affiliation	Areas of Expertise			
	Director of Nexus & HSE Center, AKUF				
Dr. Bahram	Nexus & HSE Advisor to VP and Head of Dept. of	Nexus(WEF, Soil, CC), HSE, MRV			
Taheri	Environment	Circularity			
	Nexus Advisor to Deputy Minister of Agriculture				
Dr. Reza	Secretary of National Sustainable Development	Environment, Water, Sustainable			
Maknoun	High Council	Development			
Dr. Abbas	Faculty, Ex-Deputy Minister of Water	R&D Roadmap and Tech Development			
Soroush					
Dr. Amir	Director of Artificial Intelligence and Image	Smart Transportation Infrastructure Data			
Golroo	Processing Lab	Acquisition and Analysis			
Dr. Ehsan		Energy, Hydrocarbon Upstream and			
Khamehchi	Head of Mahshahr Campus	Downstream			
5					

April 2021

# Nexus & Circularity Group members

# Distinguished members of Nexus & Circularity Group from outside AUT

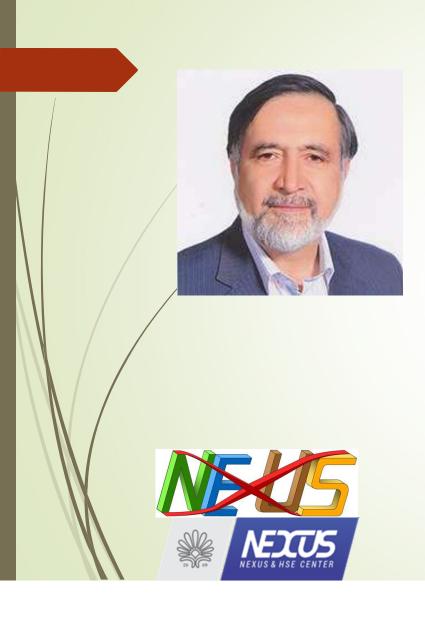
		UNEAB, UNCCD, UNFCCC, AF, Waste (Bazel,
Dr. Nasser Moghaddasi	Advisor to VP, DOE	Stockholm)
Dr. Manouchehr Gorgi		Head of Iranian Soil Sciences Society, Soil and Carbon
Anari	Professor, Univ. of Tehran	Seq.
		President of Association of Iranian Plant Protection
Dr. Rezapanah	Associate Prof. AREEO	Scienntific Societies
	Dir. Water & Energy Innovation,	
Dr. Mahdi Sharifzadeh	VPST	Water and Energy Nexus
Dr. Mehdi Fatourehchi	Head, Media & Family Dept., UoT	Social Sciences, Society & Externalities, NGOs
Dr. Katayoun		
Nematpour	Head, HSE Dept., MIMT	Health & Environmental Externalities of Industry
	Head, Advance Tech Development,	
Dr. Bahnaz Bakhtiari	MIMT	Advanced and Innovatve Tech Development
Dr. Abdollah Mostafaei	Energy & Env. Faculty, NRI	Energy, Waste, RDF, Water, Environment
Dr. Reza Barati	CEO, South Tehran Wastewater	Wastewater Research and Development
Dr. Saeid Nazari	Faculty member NRI	Air Quality and Carbon Management
Mr. Alireza Daemi	Ex-Deputy Minister of Energy	Energy and Water Planning

# Nexus & Circularity Group members

#### **Amirkabir University Foundation Nexus Center Colleagues**

		Sustainable Development, Circular Economy,
Dr. Roya Zargarian	Nexus Center Faculty	Resilience
		Circular Economy, Hong Kong University, Sharif
Miss Shabnam Taghipour	Nexus Center member	University
Ms. Haideh Davoudpoor	Nexus Center Deputy	Nexus and content developer
Mr. Mehdi Hamzavi Tabrizi	Nexus Center member	IT, Tools & Business Developer
Ms. Zahra Nazeri	Nexus Center member	Content Developer
Dr. Seyed Moslem Mousavi	Nexus Center member	Nexus and Sustainability Transition Tools
		Developer





- Name: Dr. Bahram Taheri
- Affiliation: Department of Civil Engineering, Amirkabir University of Technology
- Working Group: Environment, Energy, and Natural Resources
- **Email:**bahramtaheri1011@yahoo.co, bahramtaheri@aut.ac.ir
- CV/Webpage: http://nexuscenter.aut.ac.ir/
- Bio:
  - Director of Nexus & HSE Center, AmirKabir University Foundation.
  - Nexus & HSE Advisor to VP, Head of Dept. of Environment,
  - Head of Nexus Center in Niroo (Power) Research Institute (NRI),
  - Nexus Advisor to Deputy Minister of Agriculture in Water & Soil
  - Director of National MRV Project for the Thermal Power Plants



Name: PD Dr. Lutz Mez

Affiliation: FU Berlin

Working Group: Environment, Energy, and Natural Resources

**■ Email:** Imez@zedat.fu-berlin.de

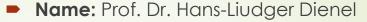
CV/Webpage: http://nexuscenter.aut.ac.ir/

■ Bio:

- Executive Director of the Environmental Policy Research Centre (FFU) until 2010
- Coordinator of the Berlin Center for Caspian Region Studies (BC CARE) until 2017
- Board Member of the Berlin Center for Caspian
   Region and Eurasian Studies (BC CRES) since 2018
- Founder and Organisator of the REFORM Group
- Iranian-German Research Projects since 2008







- Affiliation: TU Berlin
- Working Group: Environment, Energy, and Natural Resources
- **Email:** hans-liudger.dienel@tu-berlin.de
- CV/Webpage: <u>www.nexusinstitut.de</u>
- Bio:
  - Chair for Work, Technology and Participation (<u>www.arte.tu-berlin.de</u>)
  - Study Dean, School of Education of TU Berlin
  - Vice-Director of TUB-MBA Programs Energy Management, Building Management, Sustainable Mobility Management (www.master-in-energy.com)
  - Director of nexus Institute for Cooperation Management (<u>www.nexusinstitut.de</u>)
  - Board Member and until 2013 Director of Center for Technology and Society of TU Berlin
  - Iranian-German Research Projects since 2006 (Energy Efficient Cities of Tomorrow (Megacity-program BMBF and Green Energy Center of Iran (since 2016, BMU IKI-Program)







- Name: Prof. Dr. Matthias Schmidt
- Affiliation: University of Augsburg
- Working Group: Environment, Energy, and Natural Resources
- Email: schmidt@geo.uni-augsburg.de
- CV/Webpage: https://www.uniaugsburg.de/en/fakultaet/fai/geo/prof/geohum/
- Bio:
  - Chair of Human Geography and Transformation Research
  - Lead Researcher of "Environmental Change and Adaptation Strategies at Lake Urmia", Funding Institution Deutsche Forschungsgemeinschaft (DFG)
  - Lead Researcher of "Managing Scarcity: Water Management and the Hydrosocial Cycle", ", Funding Institution Deutsche Forschungsgemeinschaft (DFG)
  - Research areas: Political ecology, Transition in the global south, Renewable energies, Economic geography and location development, Society and urbanization, Religion and cultural landscape



#### Universität Augsburg University



https://www.uni-augsburg.de/en/fakultaet/fai/geo/prof/geohum/



German Students, visiting Tehran, in Nature Park,
Listening to a lecture on Climate Change & Environment by
Dr. Taheri, Director of Nexus & HSE Center



German Students visiting, Siah Bisheh Pump Storage Dam Coordinated by Nexus & HSE Center

#### Laboratories

- Nexus is a concept of interconnectedness of system of systems (SOS) and by nature it is complex and multidisciplinary. Hence, our Nexus & Circularity Committee is a unique team composed of a very diverse group of top scientists from different disciplines and from different universities and institutions of research and government. It also includes representatives from NGOs to enable it to intervene in complex problems of governance, policy, technology, methodology, business plans and training in a nexus innovative manner.
- In each problem, the scientists and institutions in our committee will strengthen the already impressive capacity within the AUT by providing access to the facilities and laboratories in possession of their institutions as needed in each research scope with priority and under preferred conditions.

### **Group Contact Information**

- Contact Person: Dr. Bahram Taheri
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    - bahramtaheri@aut.ac.ir
  - ■Phone/WhatsApp: (+98)912-471-0422
  - Website: http://nexuscenter.aut.ac.ir/

NEXUS NEXUS & HSE CENTER

#### The Nexus & HSE Center





#### **Nexus & HSE Center**

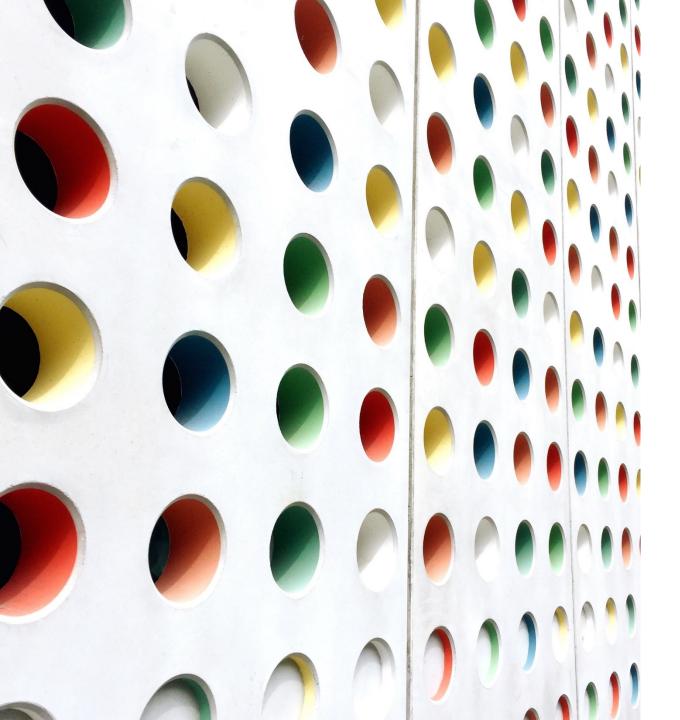
















# **AUT - DFG**

**Joint Matchmaking Webinar** 

**April 2021** 

### Ali Yousefi (PhD, Agricultural Economics)

Department of Rural Development & Water Research Institute
Isfahan University of Technology
Isfahan 8415683111, Iran.

URL: <a href="http://ayousefi.iut.ac.ir">http://ayousefi.iut.ac.ir</a>

Phone: +98-313-3913442

Email: ayousefi@iut.ac.ir



#### **Research Interest**

- Citizen Science
- Water Governance
- Environmental Economics
- Agribusiness and Value Chains
- Regional Development and Planning
- Institutional Analysis of Social Ecological System

#### **Research Projects**

- DAAD Bilateral Exchange of Academics Program Scholarship, Summer 2019
- Associated partner in STEER project (Increasing Good Governance for Achieving the Objectives of Integrated Water Resources): BMBF, 02WGR1425A, 2018-2020.

https://www.steer.uni-osnabrueck.de/