



Curriculum Vitae

Farzaneh Arabpour Roghabadi

- Associate Professor,
- Process Engineering Department, Faculty of Chemical Engineering, Tarbiat Modares University (TMU)
- Optoelectronics and Nanophotonics Research Group, Faculty of Electrical and Computer Engineering, TMU

Address:

Faculty of Chemical Engineering, Tarbiat Modares University, Tehran, Iran

E-mail : Arabpour@modares.ac.ir

Farzane.a@gmail.com

Phone: +98 – 21 82884905, 4902, 9128712452

Research Group <http://en-nopl.modares.ac.ir/>
[Farzaneh Arabpour Roghabadi - Google Scholar](#)

h-index:21

Education:

- PhD in Chemical Engineering, Polymer
Tarbiat Modares University (TMU), Tehran, Iran.
- MSc in Chemical Engineering, Polymer
Tarbiat Modares University (TMU), Tehran, Iran.
- BSc in Chemical Engineering, Polymer
Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran

Research Experiences and Interests

- Perovskite Solar Cells and Perovskite-based Optoelectronic Devices
- Solar Water Desalination and Photocatalytic Wastewater Treatment
- Water Evaporated-hydrovoltaic Power Generation
- CO₂ Conversion to Solar Fuels
- Solar-driven Chemical Reactions

Teaching Track Record

Graduate Courses at Tarbiat Modares University:

- Energy and Environment
- Advanced Materials Engineering
- Heterogeneous Catalysis
- Hydrogen Technologies and Fuel Cell
- Renewable Energies Lab.

Professional Working and Academic Experience:

- Advisor of Iran National Science Foundation (INSF), since 2023
- Organizing committee of the 13th International Chemical Engineering Congress and Exhibition, Tehran, 2026.
- Executive Chair of The 3rd West Asian Symposium on Optical and Millimeter-wave 2020, Tehran, Iran
- Postdoctoral researcher in Nano-optoelectronic Lab, TMU, Sep-2015 to Sep-2018.
- Supervisor and advisor of more than 50 M.S and 8 PhD theses in Tarbiat Modares University, Institute for Color Science and Technology, and Azad University, since 2014.
- Reviewer of a project in Ministry of Energy Institute, 2013 to 2015.
- Research expert in Ministry of Energy Institute, Mar-2010 to Oct-2010.
- Process engineer, 2008-2009, Iran Khodro Company.

Honors and Awards

- **2023** Top ten percent scientific solutions in the 3th KANS scientific competition
- **2020** Top researcher in Tarbiat Modares University
- **2019** Top researcher in Tarbiat Modares University
- **2006** Top B.S student in the Faculty of Polymer Engineering, Amirkabir University, Tehran, Iran

Projects:

- Development of novel perovskite-based photoelectrode materials and gas-diffusion photoelectrochemical devices for solar-driven high-value CO₂ conversion (**Silk-Road, Iran-China 2025**)
- Fabrication of semitransparent/flexible perovskite solar cells using flexible transparent electrodes prepared by bubble template printing technique (**Silk-Road, Iran-China, 2022**)
- Simultaneous solar water desalination and electrical power generation (INSF, 2023)
- Fabrication of floating solar still, (INIC, 2023)
- Solar water desalination using plasmonic based light absorbers, (MSRT, 2022).
- Solar water desalination using nanoporous carbon structures, (INSF, 2021).
- Fabrication of flexible perovskite solar cell (MCI, 2022)
- Low-dimensional perovskite based optoelectronic devices (VPST, 2022)
- Fabrication of perovskite solar cell module, (Industrial Ministry, 2020)
- Water management in the floating solar water desalination systems (MSRT, 2020)
- Performance improvement of Perovskite solar cells using phase change materials (INSF, 2019).
- Fabrication and performance improvement of flexible perovskite solar cell,

(INSF, 2019).

Publications:

International Patents:

- 1- Meysam Saeedi, Vahid Ahmadi, **Arabpour Roghabadi F**, Tahereh Ashjari, Ahdiye Amjadi, Dual emission perovskite quantum dots., **PCT, 2022.**
- 2- **Arabpour Roghabadi F**, Tahereh Ashjari, Ahdiye Amjadi, Vahid Ahmadi, Mahdi Salami Hosseini, Kiumars Jalili, Fabrication of Stable Flexible Nanocomposites Based on Polymer/ Perovskite QDs and Their Applications in Optoelectronic Devices , **US patent, 2022**
- 3- **Arabpour Roghabadi F**, Nasibeh Rezaei, Maryam Alidaei, Vahid Ahmadi, Seyed Mojtaba Sadrameli, Motrteza Izadifard, Mohamad Ebrahim Ghazi, Performance recovery of the degraded third generation solar cells, **US patent, 2020.**

National Patents:

- ۱- عهدیه امجدی، طاهره اشجاری، فرزانه عربپور، وحید احمدی، مهدی سلامی، کیومرث جلیلی، تهیه میکروذرات PDMS حاوی نقاط کوانتومی پروسکایتی نشتی یاب با استفاده از تکنولوژی میکروسیالی، ۱۳۹۹

Books:

- ۱- م. سراجی، ف. عربپور، ج. داورپناه، مروری بر پلیمرهای رسانا، جهاد دانشگاهی، ۱۳۹۶.
- 2- F. A. Roghabadi, M. Alidaei, and V. Ahmadi, in Energy and Environmental Technologies Towards Carbon Neutrality, ed. Z. Wang and H. He, **Royal Society of Chemistry, 2026**, vol. 4, ch. 2, pp. 52-86.

Papers:

- 1- Peng X, Luo Y, Xue J, **Arabpour Roghabadi F**, Wang Q, Wang Z, et al. CoOx–Ag Dual-Cocatalyst Modification on the Bi₄TaO₈Cl_{0.9}Br_{0.1} Photocatalyst for Selective CO₂ Reduction in a Visible-Light-Driven Z-Scheme System Coupled with H₂O Oxidation. **ACS Applied Energy Materials. 2026.**
- 2- Bahadorian M, **Arabpour Roghabadi F***, Ahmadi V, Larimi A. Highly efficient photocatalytic conversion of CO₂ to hydrocarbons using visible-active co-doped TiO₂/ PDMS nanocomposite. **Cleaner Engineering and Technology. 2026.**
- 3- Mahjoub F, Naghdi B, **Arabpour Roghabadi F***. Self-cleaning solar steam generator based on engineered carbonized waste tea photothermal layer. **Cleaner Materials. 2025.**
- 4- Alidaei M, Ahmadi V, **Arabpour Roghabadi ***, Moradbeigi M. Titanium-doped SnO₂ nanoparticles as the electron transport layer: A pathway to higher open circuit voltage and stability in perovskite solar cells. **Materials Today Sustainability. 2025.**
- 5- Heshmati FZ, **Arabpour Roghabadi F***, Sadrameli SM. Highly efficient solar

water desalination systems based on plasmonic Ni nanoparticles embedded in mesoporous TiO₂ scaffold as the photothermal material. **Separation and Purification Technology. 2025.**

- 6- Heshmati, F. Z, **Arabpour Roghabadi F***, Soleimani-Gorgani A, Highly efficient solar water desalination systems based on plasmonic Ni nanoparticles embedded in mesoporous TiO₂ scaffold as the photothermal material, **Separation and Purification Technolog, 2025.**
- 7- Shokouhi S, Saadatmand SB, Ahmadi V, **Arabpour Roghabad F**, 2D Ruddlesden–Popper X-FPEA₂PbI₄ perovskites for highly stable PeLED with improved opto-electro-mechanical properties, **Scientific Reports. 2025.**
- 8- Dadkhah B, Morshedi M, Feli D, Moghadam SMP, **Arabpour Roghabadi F***, Makenali M, et al. The multifaceted role of polymers in the performance and stability improvement of perovskite solar cells. **Chemical Engineering Journal. 2024.**
- 9- Ali HM, **Arabpour Roghabadi F***, Ahmadi V, Amjadi A, Ghaedi I. Wastewater Treatment Using High-Performance In Situ Formed Double-Heterojunction Janus Photocatalyst Microparticles Shaped via a Microfluidic Device. **Langmuir. 2024.**
- 10- Farhadipour M, Naghdi, B, **Arabpour Roghabadi F***, Soleimani-Gorgani A, 3D-screen printed, highly efficient multi-layered floating solar water desalination system. **Desalination, 2024.**
- 11- Naghdi, B, **Arabpour Roghabadi F***, Soleimani-Gorgani A, Salt-resistant solar water desalination system via surface modification and configuration engineering. **Desalination, 2024.**
- 12- Safari M, Haghtalab A, **Arabpour Roghabadi F**. Comprehensive kinetic modeling of the Fischer Tropsch synthesis over the Ru–Co@ C (Zd)@ void@ CeO₂ catalyst based on a molecular dynamics evaluated mechanism. **International Journal of Hydrogen Energy. 2024.**
- 13- Safari M, Haghtalab A, **Arabpour Roghabadi F**. Tuning the strong metal support interaction of the Fischer-Tropsch synthesis silica-coated cobalt-based nano-catalyst. **International Journal of Hydrogen Energy. 2024.**
- 14- Safari, M., Haghtalab A., **Arabpour Roghabadi F**, Comprehensive kinetic modeling of the Fischer Tropsch synthesis over the Ru–Co@ C (Zd)@ void@ CeO₂ catalyst based on a molecular dynamics evaluated mechanism. **International Journal of Hydrogen Energy, 2024.**
- 15- Safari, M., Haghtalab A., **Arabpour Roghabadi F**, A hollow void catalyst of Co@ C (Zd)@ void@ CeO₂ for enhancing the performance and stability of the Fischer–Tropsch synthesis. **RSC advances, 2023.**
- 16- Safari, M., Haghtalab A., **Arabpour Roghabadi F**, Promoting jet fuel production by utilizing a Ru-doped Co-based catalyst of Ru-Co@ C (Zd)@

- Void@ CeO₂ in Fischer Tropsch synthesis. **RSC advances**, 2023
- 17- Ali HM, **Arabpour Roghabadi F***, Ahmadi V. Solid-supported photocatalysts for wastewater treatment: Supports contribution in the photocatalysis process. **Solar Energy**. 2023.
 - 18- Safari M, Haghtalab A, **Arabpour Roghabadi F**. A hollow void catalyst of Co@ C (Zd)@ void@ CeO₂ for enhancing the performance and stability of the Fischer–Tropsch synthesis. **RSC advances**. 2023.
 - 19- Safari M, Haghtalab A, **Arabpour Roghabadi F**. Promoting jet fuel production by utilizing a Ru-doped Co-based catalyst of Ru-Co@ C (Zd)@ Void@ CeO₂ in Fischer Tropsch synthesis. **RSC advances**. 2023.
 - 20- Nikoonahad M, Sadrameli SM, **Arabpour Roghabadi F***. Preparation and optimization of nanoencapsulated capric acid being as a renewable phase change material with TiO₂ shell as shape-stabilized thermal energy storage material. **Journal of Thermal Analysis and Calorimetry**. 2023.
 - 21- Naghdi B, Heshmati F. Z, Mahjoub F, **Arabpour Roghabadi F***, Ahmadi V., Luo Y., Wang Z., Sadrameli S.H., Salt precipitation challenge in floating interfacial solar water desalination systems. **Desalination**, 2023.
 - 22- Jafaripour M., **Arabpour Roghabadi F***, Soleimanpour S, Sadrameli S.M, Barriers to implementation of phase change materials within solar desalination units: exergy, thermal conductivity, economic, and environmental aspects review, **Desalination**, 2023.
 - 23- Mousavi SM, Alidaei M, **Arabpour Roghabadi F***, Ahmadi V, Sadrameli SM and Vapaavuori J., Stability improvement of MAPbI₃-based perovskite solar cells using a photoactive solid-solid phase change material. **Journal of Alloys and Compounds**, 2022.
 - 24- Maleki M, **Arabpour Roghabadi F***, Sadrameli SM. High-performance solar steam generator using low-cost biomass waste photothermal material and engineering of the structure. **ACS Omega**, 2022.
 - 25- Maleki M, **Arabpour Roghabadi F***, Sadrameli SM., Water desalination using solar steam generation systems based on graphite photothermal material, **Journal of Applied Research of Chemical-Polymer Engineering**, 2022.
 - 26- Alidaei M, Ahmadi V, Mousavi SM, and **Arabpour Roghabadi F**. Stability improvement of perovskite solar cell using photoswitchable and moisture resistant dual-function interfacial layer. **Journal of Alloys and Compounds**, 2022.
 - 27- Ghoreishi FS, Ahmadi V, Alidaei M, **Arabpour Roghabadi F**, Samadpour M, Poursalehi R, et al. Enhancing the efficiency and stability of perovskite solar cells based on moisture-resistant dopant free hole transport materials by using a 2D-BA₂PbI₄ interfacial layer. **Physical_Chemistry_Chemical_Physics**, 2022.

- 28- Karami Z, Soleimani-Gorgan A, Vakili-Nezhaad GR and **Arabpour Roghabadi F**, A layer-by-layer green inkjet printing methodology for developing indium tin oxide (ITO)-based transparent and conductive nanofilms, **Journal of Cleaner Production, 2022.**
- 29- Saeedi M, Ahmadi V, **Arabpour Roghabadi F**, Ashjari T, Internal referencing photoluminescence probes for simultaneous sensing of O₂ gas and temperature based on Mn:MAPb(Br/Cl)₃ perovskite, **Advanced Photonics Research, 2022.**
- 30- Maleki M, **Arabpour Roghabadi F***, Sadrameli SM. Solar water desalination using single layer solar steam generation system. **J. Energy Management and Technology, 2022.**
- 31- Aliakbari P, **Arabpour Roghabadi F***, Sadrameli SM. Performance improvement of solar steam generation systems using the plasmonic effect of titanium nitride. **J. Energy Management and Technology, 2022.**
- 32- Karami S, **Arabpour Roghabadi F***, Maleki M, Ahmadi V, Sadrameli SM. Materials and structures engineering of sun-light absorbers for efficient direct solar steam generation. **Solar Energy, 2021.**
- 33- Karami S, **Arabpour Roghabadi F***, Pashaei Soorbaghi F, Ahmadi V, Sadrameli SM. Highly efficient solar steam generators based on multicore@ shell nanostructured aerogels of carbon and silica as the light absorber– heat insulator. **Solar RRL. 2021.**
- 34- Alidaei M, Ahmadi V, Mousavi SM, and **Arabpour Roghabadi F**. Stability improvement of perovskite solar cell using photoswitchable and moisture resistant dual-function interfacial layer. **Journal of Alloys and Compounds, 2022.**
- 35- Ghoreishi FS, Ahmadi V, Alidaei M, **Arabpour Roghabadi F**, Samadpour M, Poursalehi R, et al. Enhancing the efficiency and stability of perovskite solar cells based on moisture-resistant dopant free hole transport materials by using a 2D-BA₂PbI₄ interfacial layer. **Physical_Chemistry_Chemical_Physics, 2022.**
- 36- Karami Z, Soleimani-Gorgan A, Vakili-Nezhaad GR and **Arabpour Roghabadi F**, A layer-by-layer green inkjet printing methodology for developing indium tin oxide (ITO)-based transparent and conductive nanofilms, **Journal of Cleaner Production, 2022.**
- 37- Makenali M, Kazeminezhad I, **Arabpour Roghabadi F**, and Ahmadi V. Efficiency improvement of perovskite solar cells by charge transport balancing using length tunable ZnO nanorods and optimized perovskite morphology. **Solar Energy Materials and Solar Cells, 2021.**
- 38- Oniy Aghmiuni K, **Arabpour Roghabadi F***, Rezvani H, Alidaei et al. The future of hybrid and inorganic perovskite materials: technology forecasting.

Energy Technology, 2021.

- 39- Makenali M, Kazeminezhad I, Ahmadi V and **Arabpour Roghabadi F**. Charge transfer balancing of planar perovskite solar cell based on a low cost and facile solution-processed CuO x as an efficient hole transporting layer. **Journal of Materials Science: Materials in Electronics, 2021.**
- 40- Mansour Rezaei Fumani N, **Arabpour Roghabadi F**, Alidaei M, Sadrameli SM, Ahmadi V, and Najafi F, 'Prolonged lifetime of perovskite solar cells using a moisture-blocked and temperature-controlled encapsulation system comprising a phase change material as a cooling agent', **ACS Omega, 2020.**
- 41- Masoud Payandeh, Vahid Ahmadi, **Arabpour Roghabadi F**, Pariya Nazari, Fatemeh Ansari, Philipp Brenner, Rainer Bäuerle, Marius Jakoby, Uli Lemmer, Ian A. Howard, Bryce S. Richards, Ulrich W. Paetzold, and Bahram Abdollahi Nejand, 'High-brightness perovskite light-emitting diodes using a printable silver microflake contact', **ACS Applied Materials & Interfaces, 2020.**
- 42- Ashjari T, **Arabpour Roghabadi F***, and Ahmadi V, 'Facile synthesis of durable perovskite quantum dots film with near unity photoluminescence quantum yield for efficient perovskite light emitting diode', **Applied Surface Science, 2020.**
- 43- Amjadi A, Salami Hosseini M, Ashjari T, **Arabpour Roghabadi F**, Ahmadi V, and Jalili K, 'Durable perovskite UV sensor based on engineered size-tunable polydimethylsiloxane microparticles using a facile capillary microfluidic device from a high-viscosity precursor', **ACS Omega, 2020.**
- 44- Arabpour Roghabadi F, Mansour Rezaei Fumani N, Alidaei M, Ahmadi V, Sadrameli S.M, High power UV-light irradiation as a new method for defect passivation in degraded perovskite solar cells to recover and enhance the performance, **Scientific reports, 2019.**
- 45- **Arabpour Roghabadi F**, Alidaei M, Mousavi SM, Ashjari T, shokrolahzadeh Tehrani A, Ahmadi V and Sadrameli SM, Stability progress of perovskite solar cells dependent on the crystalline structure: From 3D ABX₃ to 2D Ruddlesden–Popper perovskite absorbers, **Journal of Materials Chemistry_A, 2019.**
- 46- Alidaei M, Izadifard M, Ghazi M.E, **Arabpour Roghabadi F**, Ahmadi V, Interfacial defect passivation in CH₃NH₃PbI₃ perovskite solar cells using modifying of hole transport layer, **Journal of Materials Science: Materials in Electronics, 2019.**
- 47- **Arabpour Roghabadi F**, Ahmadi N, Ahmadi V, Di Carlo A, Oniy Aghmiuni K, Shokrolahzadeh Tehrani A, Ghoreishi FS, Payandeh M, Mansour Rezaei Fumani N, Bulk heterojunction polymer solar cell and perovskite solar cell:

- Concepts, materials, current status, and opto-electronic properties, **Solar Energy**, 2018.
- 48- **Arabpour Roghabadi F**, Vahid Ahmadi, Abdollahi Nejand B, Oniy K, Boosting the lifetime and enhancing the efficiency of organic solar cell by applying an in situ synthesized low-crystalline (amorphous) ZnO layer as a high potential buffer layer, **ChemSusChem**, 2017.
- 49- Naderi M, Zargar Shoushtari M, Kazeminezhad I, Ahmadi M, **Arabpour Roghabadi F**, Hydrothermal synthesized AZO Nanorods layer as a high potential buffer layer for inverted polymer solar cell, **Ceramic International**, 2018.
- 50- Akbarpour Z, Ahmadi V, **Arabpour Roghabadi F**, Enhanced Mach-Zehnder interferometer multimode–single-mode–multimode fiber optic refractive index sensor based on surface plasmon resonance, **Optical Fiber Technology**, 2022.
- 51- Amjadi A, Salami Hosseini M, Ghashghaie F, **Farzaneh Arabpour Roghabadi**, Jalili K, Ahmadi V, Preparation of poly(dimethylsiloxane) microparticles via a co-flow microfluidic device and investigation of various parameters effect on morphology, **Journal of Applied Research of Chemical -Polymer Engineering**, 2020.
- 52- **Arabpour Roghabadi F**, Ahmadi V, Oniy K, Organic-Inorganic halide perovskite formation: in situ dissociation of cation halide and metal halide complexes during crystal formation, **The Journal of Physical Chemistry C**, 121, 2017.
- 53- **Arabpour Roghabadi F**, Ahmadi V, Oniy K, High coverage solution-processed planar perovskite solar cell grown based on the Stranski-Krastanov mechanism at low temperature and short time. **RSC Advances**, 2016.
- 54- **Arabpour Roghabadi F**, Kokabi M, Ahmadi V, Abaeiani G, Quantum dots crosslinking as a new method for improving charge transport of polymer/quantum dots hybrid solar cells and fabricating solvent-resistant film, **Electrochimica Acta**, 2016.
- 55- **Arabpour Roghabadi F**, Oniy K, Ahmadi V, Optical and electrical simulation of hybrid solar cell based on conjugated polymer and size-tunable CdSe quantum dots: Influence of the QDs size, **Organic Electronics**, 2016.
- 56- **Arabpour Roghabadi F**, Kokabi M, Ahmadi V, Gholamreza Abaeiani, Structure optimization of P3HT:CdSe hybrid solar cell using optical analysis and electrochemical impedance spectroscopy, **Thin Solid Films**, 2017.

Talks as the Invited Speaker:

- 1- **Arabpour Roghabadi F**, Towards a Carbon Neutral Future with the Halide Perovskite Technology, **World Congress of Chemical Engineering 2025, China.**
- 2- **Arabpour Roghabadi F**, Solar water desalination using floating systems: an innovative approach for sustainable freshwater supply, **Desalination and Freshwater Production opportunities 2025, Iran.**
- 3- **Arabpour Roghabadi F**, Nanostructures in Interfacial Solar Water Desalination, **International Congress on Nanoscience and Nanotechnology 2024, Iran.**

Community Membership

- Member of International Committee of Iranian Association of Chemical Engineering (IACHE)
- Member of Iranian Association of Polymer Science and Engineering
- Member of Optics and Photonics Society of Iran