Curriculum Vitae

Farzaneh Arabpour Roghabadi

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

Education:

- ***PhD:***

PhD in Polymer Engineering
Tarbiat Modares University (TMU), Tehran, Iran.
Thesis Title: Design and Fabrication of High Energy-Harvesting Active Layer for Hybrid Solar Cell Based on Conjugated Polymer/Quantum Dot Nanocomposite

- ***Master of science***

M.S. in Polymer Engineering
Tarbiat Modares University (TMU), Tehran, Iran.
Thesis Title: Chemorheology of Gelcasting Nanocomposite Systems based on SiAlON in Order to Fabricate Typical Ceramic Articles

- ***Bachelor of Science***

B.S in Polymer Engineering
Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran
Thesis Title: The Effect of Compatibilizer and Rubber Content on PP/EPDM Blends

Research Experiences and Interests

Dr.Arabpour's group mainly focuses on the areas of advanced semiconductor materials applicable for photoreactions, solar water desalination, photocatalytic wastewater treatment, perovskite solar cells and LEDs, and generation of solar fuel using sunlight as the renewable source of energy.

Currently, in her group students are working on 4 categories; **Solar water desalination through solar steam generation**, **Solar wastewater treatment using photocatalytic process**, **Perovskite solar cells and LEDs**, and **CO_2 conversion to solar fuels**.

Professional Working and Academic Experience:

- Executive chair of the 3rd West Asian Symposium on Optical and Millimeter-Wave Wireless Communications (*WASOWC2020*).
- Postdoctoral researcher in Nano-optoelectronic Lab, TMU, Sep-2015 to Sep-2018.
- Assistant professor, Optoelectronics and Nanophotonics Research Group, Faculty of Electrical Engineering, Tarbiat Modares University, Tehran, Iran, 2017-present.
- Supervisor and advisor of more than 35 M.S and 3 PhD thesis in Tarbiat Modares University, Institute for Color Science and Technology, and Azad University (Central Tehran Branch), since 2014.
- Reviewer of a project in Ministry of Energy Institute, 2013 to 2015.
- Research expert in Ministry of Energy Institute, March-2010 to October-2010.
- Process engineer, 2008-2009, Iran Khodro Company.

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.

Projects:

- Fabrication of semitransparent/flexible perovskite solar cells using flexible transparent electrodes prepared by bubble template printing technique (INSF, 2022)
- Low-dimensional perovskite based optoelectronic devices (VPST, 2022)
- Solar water desalination using pelasmonc based light absorbers, (MSRT, 2022).
- Water management in the floating solar water desalination systems(MSRT, 2020)
- Solar water desalination using nanoporous carbon structures, (INSF, 2021).

- Fabrication of perovskite solar cell module, (Industrial Ministry, 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, 2020**

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 نشتی‌یاب با استفاده از تکنولوژی میکروسیالی، ۱۳۹۹

Books:

۱- م. سراجی، ف. عربپور، ج.داورپناه، مروری بر پلیمرهای رسانا، جهاد دانشگاهی، ۱۳۹۶.

Journals:

1- 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.**

2- Alidaei M, Ahmadi V, Mousavi SM, **Arabpour Roghabadi F**. Stability improvement of perovskite solar cell using photoswitchable and moisture resistant dual-function interfacial layer. **Journal of Alloys and Compounds**, **2022**.

3- 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**.

4- Mousavi SM, Alidaei M, **Arabpour Roghabadi F**, Ahmadi V, Sadrameli SM, Vapaavuori J. Stability improvement of $MAPbI_3$-based perovskite solar cells using a photoactive solid-solid phase change material. **Journal of Alloys and Compounds, 2022**.

5- Makenali M, Kazeminezhad I, **Arabpour Roghabadi F**, 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**.

6- 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.**

7- Oniy Aghmiuni K, **Arabpour Roghabadi F**, Rezvani H, Alidaei M, Falahi M, Pashaei Soorbaghi F, et al. The Future of Hybrid and Inorganic Perovskite Materials: Technology Forecasting**. Energy Technology, 2021.**
8- Makenali M, Kazeminezhad I, Ahmadi V, **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**.
9- Karami S, **Arabpour Roghabadi F**, Maleki M, Ahmadi V, Sadrameli S M, Materials and Structures Engineering of Sun-Light Absorbers for Efficient Direct Solar Steam Generation, **Solar Energy, 2021**.
10- 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**.
11- Makenali M, Kazeminezhad I, Ahmadi V, **Arabpour Roghabadi F**. Charge transfer balancing of planar perovskite solar cell based on a low cost and facile solution-processed CuOx as an efficient hole transporting layer. **Journal of Materials Science: Materials in Electronics**, **2021**.
12- Nasibeh Mansour Rezaei Fumani, **Arabpour Roghabadi F**, Maryam Alidaei, Seyed Mojtaba Sadrameli, Vahid Ahmadi, and Farhood Najafi, '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**.
13- 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**.
14- Tahereh Ashjari, **Arabpour Roghabadi F**, and Vahid Ahmadi, 'Facile Synthesis of Durable Perovskite Quantum Dots Film with near Unity Photoluminescence Quantum Yield for Efficient Perovskite Light Emitting Diode', **Applied Surface Science, 2020**.
15- Ahdieh Amjadi, Mahdi Salami Hosseini, Tahereh Ashjari, **Arabpour Roghabadi F**, Vahid Ahmadi, and Kiyumars Jalili, '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**.
16- Ahdieh Amjadi, Mahdi Salami Hosseini, Fatemeh Ghashghaie, **Farzaneh Arabpour Roghabadi**, Kiyumars Jalili, Vahid Ahmadi, 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**.
17- **Arabpour Roghabadi F**, Maryam Alidaei , Seyede Maryam Mousavi , tahereh ashjari , Ali shokrolahzadeh Tehrani , Vahid Ahmadi and Seyed Mojtaba Sadrameli, 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.**
18- **Arabpour Roghabadi F,** Najmeh Ahmadi, Vahid Ahmadi, Aldo Di Carlo, Karim Oniy Aghmiuni, Ali Shokrolahzadeh Tehrani, Farzaneh Sadat Ghoreishi, Masoud Payandeh, Nasibeh Mansour Rezaei Fumani, Bulk heterojunction polymer solar cell and perovskite solar cell: Concepts, materials, current status, and opto-electronic properties, **Solar Energy,**

2018.

19- **Arabpour Roghabadi F**, Vahid Ahmadi, Bahram Abdollahi Nejand, Karim Oniy, 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**.

20- Masoumeh Naderi, Morteza Zargar Shoushtari, Iraj Kazeminezhad, Mehdi Ahmadi, **Arabpour Roghabadi F**, Hydrothermal synthesized AZO Nanorods layer as a high potential buffer layer for inverted polymer solar cell, **Ceramic International, 2018.**

21- **Arabpour Roghabadi F**, Vahid Ahmadi, , Karim Oniy, 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**.

22- **Arabpour Roghabadi F,** Vahid Ahmadi, Karim Oniy, High coverage solution-processed planar perovskite solar cell grown based on the Stranski-Krastanov mechanism at low temperature and short time**.** ***RSC Advances,* 2016**.

23- **Arabpour Roghabadi F**, Mehrdad Kokabi, Vahid Ahmadi, Gholamreza Abaeiani, 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**.

24- **Arabpour Roghabadi F,** Karim Oniy, Vahid Ahmadi, Optical and electrical simulation of hybrid solar cell based onvconjugated polymer and size-tunable CdSe quantum dots: Influence of the QDs size, **Organic Electronics, 2016.**

25- **Arabpour Roghabadi F**, Mehrdad Kokabi, Vahid Ahmadi, Gholamreza Abaeiani, Structure optimization of P3HT:CdSe hybrid solar cell using optical analysis and electrochemical impedance spectroscopy, **Thin Solid Films, 2017**.

26- Karim Oniy, Vahid Ahmadi, **Arabpour Roghabadi F,** Performance Improvement of P3HT:CdSe Hybrid Solar Cell by Modifying Hole Injection Layer**, Procedia Material Science, 2015**.

27- **Arabpour Roghabadi F,** Mehrdad Kokabi, Vahid Ahmadi, Gholamreza Abaeiani, Optical Properties of CdS Quantum Dots Synthesized via Organometallic Method, **Iranian Journal of Nanoscale, 2015.**

28- **Arabpour Roghabadi F**, Mehrdad Kokabi, Ahmad Reza Bahramian, Chemorheological behavior of β-SiAlON aqueous suspensions in gelcasting process, **Polymer Engineering & Science, 2013.**

Some of the Conference Papers:

1- Mahmoud Maleki**, Arabpour Roghabadi F,** Seyed Mojtaba Sadrameli, Vahid Ahmadi,

Water Desalination with the Solar Steam Generation Systems Made of Populus Alba Wood**, ICDEWP 2021, Iran**.

2- Sogol Karami, **Arabpour Roghabadi F**, Seyed Mojtaba Sadrameli, Vahid Ahmadi, Highly efficient solar steam generation using carbon-based absorber, **11th International Chemical Engineering Congress, 2020, Iran.**
3- **Arabpour Roghabadi F**, Ali Shokrolahzadeh Tehrani, Bahram Abdollahi Nejand, Masoud Payandeh, Vahid Ahmadi, Solution Processed Large area Module of Organic-inorganic Hybrid Perovskite Solar Cells based on Polymer Hole Transporting Layer, **ISPST 2018, Iran.**
4- Nasibeh Mansoor Rezaei, **Arabpour Roghabadi F,** Maryam Alidaei, Seyed Mojtaba Sadrameli, Vahid Ahmdi , Farhood Najafi, Morteza Izadifard , Mohammad Ebrahim Ghazi**,** Lifetime improvement of organic-inorganic hybrid perovskite solar cells by encapsulation**, UFGNSM2017, Iran.**
5- **Arabpour Roghabadi F**, Vahid Ahmadi, Farzaneh Sadat Ghoreishi, Karim Oniy Aghmiuni , Ali Shokrolahzadeh, Masoud Payandeh, Stability loss of organic-inorganic hybrid perovskite solar cells due to ion migration, **UFGNSM2017, Iran.**
6- **Arabpour Roghabadi F**, Vahid Ahmadi, Farzaneh Sadat Ghoreishi, Karim Oniy Aghmiuni , Masoud Payandeh, Comparison of Lifetime and Degradation Mechanism of Perovskite and Polymer Solar Cells, **NSSC95, Iran.**
7- **Arabpour Roghabadi F,** Vahid Ahmadi, Karim Oniy, A pinhole-free planar perovskite solar cell fabricated at low temperature **, PSCO 2016, Italy**.