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Curriculum Vitae

Mostafa Dadashi Firouzjaei

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Research Interests

Nanomaterials, 2D Materials, Water and Wastewater Treatment, Membrane filtration, Environmental Microbiology.

Professional Experience

- Founder, and CEO of "**MATCH Engineering** (Magazine of Academic and Technical Crimson Horizons Engineering)" (2019-), University of Alabama, Tuscaloosa, AL
- Executive Manager (2015-2017), AR Membrane Research Lab, Babol, IRAN
- Editorial Board (2011-2015), Khanevadeh Sabz Magazine, Tehran, IRAN

Education

- Ph.D., Civil and Environmental Engineering, **University of Alabama**, Tuscaloosa, AL, (August 2018-Present)-Advisor: **Dr. Mark Elliott**
    - Visiting: Purdue School of Engineering & Technology, **IUPUI**-Advisor: Dr. **Babak Anasori**
- M.S., Environmental Engineering, **University of Alabama**, Tuscaloosa, AL, (2018-2020)
- M.S., Material Science and Engineering, **Sharif University of Technology**, Tehran, IRAN (2015-2017)
- B.S., Material Science and Engineering, **Iran University of Science and Technology**, Tehran, IRAN (2011-2015)

Refereed Journal Articles

First Authored Articles:

1. **Firouzjaei, M.D**, Mohammadsepehr Karimiziarani, Hamid Moradkhani, Mark Elliott, and Babak Anasori. "MXenes: The two-dimensional influencers." Materials Today Advances 13: 100202, **2022**
2. **Firouzjaei, M. D**., Pejman, M., Gh, M. S., Aktij, S. A., Zolghadr, E., Rahimpour, A., ... & Elliott, M. (2022). Functionalized polyamide membranes yield suppression of biofilm and planktonic bacteria while retaining flux and selectivity. Separation and Purification Technology, 282, 119981. **2022**
3. **Firouzjaei, M.D**, Ehsan Zolghadr, Shahin Ahmadalipour, Nastaran Taghvaei, Farhad Akbari Afkhami, Siamak Nejati, and Mark A. Elliott. "Chemistry, abundance, detection and treatment of per-and polyfluoroalkyl substances in water: a review." Environmental Chemistry Letters: 1-19, **2021**
4. **Firouzjaei, M.D**., Shamsabadi, A.A., Aktij, S.A., Seyedpour, S.F., Sharifian Gh, M., Rahimpour, A., Esfahani, M.R., Ulbricht, M. and Soroush, M., 2018. Exploiting synergetic effects of graphene oxide and a silver-based metal-organic framework to enhance antifouling and anti-biofouling properties of thin-film nanocomposite membranes. ACS applied materials & interfaces, **2018**
5. **Firouzjaei, M.D**., Shamsabadi, A.A., Sharifian Gh, M., Rahimpour, A. and Soroush, M., 2018. A novel nanocomposite with superior antibacterial activity: a silver?based metal organic framework embellished with graphene oxide. Advanced Materials Interfaces, **2018**
6. **Firouzjaei, M.D**., Seyedpour, S.F., Aktij, S.A., Giagnorio, M., Bazrafshan, N., Mollahosseini, A., Samadi, F., Ahmadalipour, S., Firouzjaei, F.D., Esfahani, M.R. and Tiraferri, A., 2020. Recent advances in functionalized polymer membranes for biofouling control and mitigation in forward osmosis. Journal of Membrane Science, **2020**
7. **Firouzjaei, M.D**., Afkhami, F.A., Esfahani, M.R., Turner, C.H. and Nejati, S., 2020. Experimental and molecular dynamics study on dye removal from water by a graphene oxide-copper-metal organic framework nanocomposite. Journal of Water Process Engineering, **2020**
8. Pejman, M.[+], **Firouzjaei, M.D**.[+], Aktij, S.A., Das, P., Zolghadr, E., Jafarian, H., Shamsabadi, A.A., Elliott, M., Esfahani, M.R., Sangermano, M. and Sadrzadeh, M., Improved antifouling and antibacterial properties of forward osmosis membranes through surface modification with zwitterions and silver-based metal organic frameworks. Journal of Membrane Science, **2020** ([+]Same Contribution as First Author)

9. Pejman, Mehdi, **Firouzjaei, M.D**, Sadegh Aghapour Aktij, Ehsan Zolghadr, Parnab Das, Mark Elliott, Mohtada Sadrzadeh, Marco Sangermano, Ahmad Rahimpour, and Alberto Tiraferri. "Effective strategy for UV-mediated grafting of biocidal Ag-MOFs on polymeric membranes aimed at enhanced water ultrafiltration." Chemical Engineering Journal (2021): 130704. (⁺Same Contribution as First Author)
10. Seyedpour, S.F. ⁺, **Firouzjaei, M.D.⁺**, Rahimpour, A., Zolghadr, E., Arabi Shamsabadi, A., Das, P., Afkhami, F., Sadrzadeh, M., Tiraferri, A. and Elliott, M., 2020. Toward Sustainable Tackling of Biofouling Implications and Improved Performance of TFC FO Membranes Modified by Ag-MOF Nanorods. ACS Applied Materials & Interfaces, **2020** (⁺Same Contribution as First Author)
11. Pejman, M.⁺, **Firouzjaei, M.D⁺**, Aktij, S., Das, P., Zolghadr, E., Jafarian, H., Arabi Shamsabadi, A., Elliott, M., Sadrzadeh, M., Sangermano, M. and Rahimpour, A., 2020. In Situ Ag-MOF Growth on Pre-Grafted Zwitterions Imparts Outstanding Antifouling Properties to Forward Osmosis Membranes. ACS Applied Materials & Interfaces, **2020** (⁺Same Contribution as First Author)
12. Seyedpour, S.F. ⁺, Arabi Shamsabadi⁺, A., Salestan, S. ⁺, **Firouzjaei, M.D⁺**, Sharifian Gh, M., Rahimpour, A., Afkhami, F., Kebria, M.R., Elliott, M.A., Tiraferri, A. and Sangermano, M., 2020. Tailoring the Biocidal Activity of Novel Silver-Based Metal Azolate Frameworks. ACS Sustainable Chemistry & Engineering, 8(20), **2020** (⁺Same Contribution as First Author)
13. Esfahani, M.R. ⁺, Aktij, S.A. ⁺, Dabaghian, Z. ⁺, **Firouzjaei, M.D.** ⁺, Rahimpour, A. ⁺, Eke, J. ⁺, Escobar, I.C., Abolhassani, M., Greenlee, L.F., Esfahani, A.R. and Sadmani, A., 2019. Nanocomposite membranes for water separation and purification: Fabrication, modification, and applications. Separation and Purification Technology, **2019** (⁺Same Contribution as First Author)

Other co-Authored Articles:

1. Mozafari, M., Seyedpour, S.F., Salestan, S.K., Rahimpour, A., Shamsabadi, A.A., **Firouzjaei, M.D**., Esfahani, M.R., Tiraferri, A., Mohsenian, H., Sangermano, M. and Soroush, M., 2019. Facile Cu-BTC surface modification of thin chitosan film coated polyethersulfone membranes with improved antifouling properties for sustainable removal of manganese. Journal of Membrane Science, **2019**
2. Esfahani, M.R., Koutahzadeh, N., Esfahani, A.R., **Firouzjaei, M.D**., Anderson, B. and Peck, L., 2019. A novel gold nanocomposite membrane with enhanced permeation, rejection and self-cleaning ability. Journal of Membrane Science, **2019**
3. Rahimpour, A., Seyedpour, S.F., Aktij, S., **Firouzjaei, M.D**, Zirehpour, A., Arabi Shamsabadi, A., Salestan, S., Jabbari, M. and Soroush, M., 2018. Simultaneous improvement of antimicrobial, antifouling, and transport properties of forward osmosis membranes with immobilized highly compatible polyrhodanine nanoparticles. Environmental science & technology, **2018**
4. Zirehpour, A., Rahimpour, A., Khoshhal, S., **Firouzjaei, M.D.** and Ghoreyshi, A.A., 2016. The impact of MOF feasibility to improve the desalination performance and antifouling properties of FO membranes. RSC advances, **2016**
5. Bazrafshan, Nasim, **Firouzjaei, M.D**, Mark Elliott, Amitis Moradkhani, and Ahmad Rahimpour. "Preparation and modification of low-fouling ultrafiltration membranes for cheese whey treatment by membrane bioreactor." Case Studies in Chemical and Environmental Engineering 4: 100137, **2021** (⁺Corresponding Author)
6. Zolghadr, Ehsan, **Firouzjaei, M.D**, Ghoncheh Amouzandeh, Patrick LeClair, and Mark Elliott. "The Role of Membrane-Based Technologies in Environmental Treatment and Reuse of Produced Water." Frontiers in Environmental Science 9: 71. **2021** (⁺Corresponding Author)
7. Karami, Pooria, Sadegh Aghapour Aktij, Behnam Khorshidi, **Firouzjaei, M.D**, Asad Asad, Mark Elliott, Ahmad Rahimpour, João BP Soares, and Mohtada Sadrzadeh. "Nanodiamond-decorated thin film composite membranes with antifouling and antibacterial properties." Desalination 522: 115436, **2022**

Proposal Writing Experience

- Funded Proposal, total amount of **$40,000**, "*Development of multifunctional polymeric membranes for advanced water treatment: Selective removal of Polyfluoroalkyl substances (PFAS), dyes, and bacteria*" **National Water Center (University of Alabama)**, and **United States Environmental Protection Agency (USEPA),** 2020

  My Role in this proposal: I) Identified topic, II) led drafting and revision of proposal, III) developed figures.

- Submitted Proposal, total amount of **$25,000**, "*Novel Membrane Fabrication for Improved Flux, Reduced Fouling and Efficient Treatment of PFOA"* **United States Environmental Protection Agency (USEPA)**, 2021

  My Role in this proposal: I) Identified topic, II) led drafting and revision of proposal, III) developed figures.

Honors & Awards

- Recipient of "**Graduate Council Fellowship (GCF)"**, Total value of $52,000, University of Alabama, **2020**
- Ranked **10th** among more than **11'000** contestants in the Master of Science and Engineering National Entrance Exam-Material Science and Engineering, **2015**
- Ranked **1st** among the Material Science and Engineering class of 2011 at the Iran University of Science and Technology, National University Entrance Exam, **2011**

Links

- Personal Website
- google Scholar
- Twitter
- LinkedIn