

Mahbod Moein-Jahromi

Assistant Professor
Mechanical Engineering Dep.
Jahrom University (JU)

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Academic Professional Profiles:

[Home Page](#), [Google Scholar](#), [Scopus](#), [ORCID](#), [LinkedIn](#)

☰ Professional Summary

Experienced assistant professor of mechanical engineering with a demonstrated history of working as an academic lecturer, and researcher, honors, and awards due to outstanding and professional academic activities, very curious about exploring the newest frontier of renewable energies, interested in researching about hydrogen energy and fuel cell systems as an alternative of conventional fossil fuels and engines, trying to overcome commercial bottlenecks (cost and durability) of fuel cell vehicles in recent academic publications, work experience in the 3rd largest vehicle company in Iran, partner and communicate with multidisciplinary and cross-functional teams to deliver business-driving analytical projects through designing, prototyping, and implementing innovative solutions

🎓 Education

● Ph.D.

2014(Jan.)-2018(Sep.)
Tehran

Amirkabir University of Technology
(Polytechnic Tehran)

School: Mechanical Engineering Dep.

Section: Energy Conversion

Total GPA =19.58, Distinguished student (Top 5% of class)

Dissertation Title: “Model Development of Cathode Catalyst Layer Degradation in PEM Fuel Cell under Different Operating and Structural Parameters”

Dissertation Defense: Ph.D. thesis was defended with high distinction

Achievements: Two ISI papers (Q1, IF=8.247), 1 national conference paper

Supervisor: [Dr. Mohammad Jafar Kermani](#)

Advisors: [Dr. Saeed Movahed](#), [Dr. Mohammad Mahdi Abdollahzadeh](#)

● M.S.

2010(Sep.)-2012(Sep.)
Tehran

Amirkabir University of Technology
(Polytechnic Tehran)

School: Mechanical Engineering Dep.

Section: Energy Conversion

Total GPA =18.03, Distinguished student (Top 5% of class)

Thesis Title: “One Dimensional Performance Modeling of PEM Fuel Cells”

Dissertation Defense: M.S. thesis was defended with high distinction

Achievements: 1 ISI papers (Q1, IF=4.939), 2 international +2 national conference paper

Supervisor: [Dr. Mohammad Jafar Kermani](#)

Advisor: [Dr. Ebrahim Damangir](#)

● B.S.

2006(Sep.)-2010(July)
Zahedan

Sistan and Baluchestan University

School: Mechanical Engineering Dep.

Section: Solid Mechanics

Total GPA =17.49, 1st Rank (Top of class)

Thesis Title: “Buckling Analysis of Thermal Stress in Finned Rings”

Dissertation Defense: B.S. thesis was defended with the EXCELLENT degree

Supervisor: [Dr. Alireza Hossein-Nezhad](#)

Honors and Awards

- Academic award from National Elites Foundation, named **Dr. Kazemi-Ashtiani Award** as a faculty member of Jahrom university (2019-2020).
Details: it is annually given to the only top 100 people among all graduates of Iranian universities who have the maximum elite activities (at least 250 points and above)
The facilities of this award are:
 - Assistance in recruitment as a faculty member in universities
 - Grants for research activities
 - Grants for equipment purchaseThe rules of this award are fully explained (in Persian) [here](#)
- **Distinguished Ph.D. student (Top 5% of class)** of the academic year 2018 (Thermo-Fluid) Mech. Eng. Dep.
- **Admission as Exceptional Talents without examination admission regulations in Ph.D.** in 2013.
- **Elite Soldier:** benefit from the facilities of the National Elites Foundation to fulfill a research project in Renewable Energy Organization as a substitution of military service (2013).
- **Distinguished M.S. student (Top 5% of class)** of the academic year 2012 (Thermo-Fluid) Mech. Eng. Dep.
- Awarded for the **Top Rank M.S. Thesis** of academic year 2012 in Amirkabir University of Technology, Iran.
- **Top Rank (1st) B.S. student** of the academic year 2010 (Solid-Mechanics) Mech. Eng. Dep.
- **Outstanding student** in the 15th mechanical engineering Olympiad between universities in 7th hub in Iran (2010)
- **The reviewer of Energy Conversion and Management Journal (Q1 and high-rank ISI journal with IF=8.208)**, [Journal Link](#)

Publication

Journal Papers

- **Moein-Jahromi M**, Kermani MJ. [Three-dimensional Modeling and Performance Optimization of Polymer Exchange Membrane Fuel Cell with Focus on Cathode-Catalyst Layer Degradation Under Potential Cycling](#). Energy Conversion and Management 2021 (231) 113837 (**Q1, IF=8.208**).
- **Moein-Jahromi M**, Heidary H. [Durability and Economics Investigations on Triple Stack Configuration and its Power Management Strategy for Fuel Cell Vehicles](#). International Journal of Hydrogen Energy 2021(46) 5740-5755 (**Q1, IF=4.939**).
- **Moein-Jahromi M**, Kermani MJ, Movahed S. [Degradation Forecast For PEMFC Cathode-Catalysts Under Cyclic Loads](#). Journal of Power Sources 2017(359) 611-625 (**Q1, IF=8.247**).
- **Moein-Jahromi M**, Kermani MJ, Movahed S. [Prediction of Degradation in Performance of Cathode Catalyst Layer During Load Cycling](#). Modares Mechanical Engineering 2017 17(6) 67-78.
- **Moein-Jahromi M**, Movahed S, Kermani MJ. [Numerical Study of the Cathode Electrode in the Microfluidic Fuel Cell Using Agglomerate Model](#). Journal of Power Sources 2015(277) 180-192 (**Q1, IF=8.247**).
- **Moein-Jahromi M**, Kermani MJ. [Performance prediction of PEM fuel cell cathode catalyst layer using agglomerate model](#). International Journal of Hydrogen Energy 2012(38) 17954-17966 (**Q1, IF=4.939**).

Conference Papers

- **Moein-Jahromi M**, Kermani MJ, Abdollahzadeh M. [CFD Electrochemical Modeling of the Cathode Electrode of PEM Fuel Cell](#). 28th Annual International Iranian Mechanical Engineering Conference 2020 Terhran, Iran (**International**).
- Sadeghi Baghani R, **Moein-Jahromi M**, Kermani MJ. [Two-phase modeling of polymer exchange membrane fuel cell considering dissolved water content in ionomer phase](#), 28th Annual International Iranian Mechanical Engineering Conference 2020 Tehran, Iran (**International**).
- **Moein-Jahromi M**, Kermani MJ. [Development of Homogeneous to Agglomerate Model for the Computation of Cathode Catalyst Layer of PEM Fuel Cells](#). International Conference on Renewable Energy: Generation and Applications (ICREGA 2012) 2012 Al-Ain, UAE (**International**).
- **Moein-Jahromi M**, Kermani MJ. [Modeling of Nafion 115 Membrane and GDL in Anode and Cathode Sides of a PEMFC](#). 20th Annual International Iranian Mechanical Engineering Conference 2012 Shiraz, Iran (**International**).

- **Moein-Jahromi M**, Kermani MJ. Review on Performance of PEMFC for a Power System of a Vehicle Under Catalyst Layer Degradation. The 6th Fuel and Combustion Conference of Iran (FCCI-2017) 2017 Mashhad, Iran (**National**).
- **Moein-Jahromi M**, Kermani MJ, Dehsara M, Ahmadi-Sarbast V. Comparison of Homogenous and Agglomerate Model for PEM Electro-Catalyst Layer. 5th Iranian Fuel Cell Seminar 2012 Tehran, Iran (**National**).
- **Moein-Jahromi M**, Kermani MJ, Development Homogeneous Model of Cathode Catalyst Layer of PEM Fuel Cell to Agglomerate one. 2nd Iranian Conference on Renewable Energy and Distributed Generation (ICREDG 2012) 2012 Tehran, Iran (**National**).

🔧 Work Experiences

● Assistant Professor

2019(Nov.)-Present
Jahrom

Jahrom University (JU)

Department: Mechanical Engineering

Descriptions: Faculty member

Teaching Courses:

Engineering Math, Heat Transfer, Fundamentals of Thermodynamics, Fundamentals of Fluid Mechanics, Renewable Energies and its applications, Thermodynamics Lab

Main Researching Projects:

- Durability and economics investigations on triple stack configuration and its power management strategy for hydrogen fuel cell vehicles
- Three dimensional modeling and performance optimization of proton exchange membrane fuel cell with focus on cathode-catalyst layer degradation under potential cycling for hydrogen fuel cell vehicles
- Development of a system of simultaneous power production and freshwater from desalination processes of saline water

Achievements

- 2 ISI papers which are under review process
- 1 Industrial contract (research project)
- 2 International conference paper
- Advisor of one Ph.D. student and one M.S. student, supervisor of 5 B.S. students
- Membership of Specialized Council of Publications in Jahrom University

● Senior Engineer

2014(July)- 2019(Feb.)
Tehran

Bahman Motor Company

Department: R&D, Homologation

Key Responsibilities:

- Improving produced vehicles to meet the new standards and regulations (homologations) in different stage such as type approval and conformity of production
- Part design, CFD (computational fluid dynamic) and FEM (finite element method) analysis of systems and sub-systems

Main Projects:

- CFD simulation of the cooling system and air intake box of Mazda Cara2000 pickup to improve the engine performance and vehicle emission
- Modal, structural, and vibration analysis of new designed bracket of the compressor and hydraulic pump in Mazda Cara2000 pickup
- Analysis of tractive force, dynamic force, and aerodynamic force to calculate the gradeability, and performance curve for gearbox localization in Mazda Cara2000

Achievements:

Parts design was completed sooner than it was considered and fortunately, Mazda Cara2000 met all the standards requirements and regulations and was launched in time as a new product to the market. I was endorsed and appreciated by the project manager of Mazda Cara2000 in this regard.

● Elite Soldier

2013(May)-2014(May)
Tehran

Renewable Energy Organization

Department: H₂ & Fuel Cells Systems

Main Project: Modeling and analysis of high temperature fuel cell

● Part-time Lecturer

2010(Jan.)
Tehran

Amirkabir University of Technology (Polytechnic Tehran)

Department: Mechanical Engineering

Length: 6 Semesters

Teaching Courses: Engineering Math, Heat Transfer for B.S. students

Workshop Attended: Fuel cell system, The Second National Conference on Hydrogen and Fuel Cells, KNT University, HFCCConf. 2012, Tehran, Iran, May 2-3, 2012.

🧠 Key Skills

- Proficient in novel teaching techniques including self-study, test, question and discussion (STQD) process, and experience of virtual teaching via Adobe Connect® software
- Innovator of a novel method for lifetime assessment of polymer exchange membrane fuel cell (PEMFC) systems under the vehicular condition
- Extensive experience in computational fluid dynamic modeling of PEMFC through Ansys Fluent®, and developing code in the environment of the software package of Matlab® and Fortran®
- Expertise in researching about renewable energies, especially hydrogen energy, and reducing the degradation and cost of fuel cell systems (as the main technological bottlenecks)
- Learning more and more to increase knowledge about new subjects in the field of research
- High perseverance and hardworking to discover answers
- Lots of experience to design systems and sub-systems based on failure mode and effect analysis (FMEA)
- Well experienced in problem-solving strategies and root cause analysis such as eight disciplines (8D) and fishbone diagram
- High flexibility and cooperation in team working to carry out the jobs and meet the goals
- Skilled in effective communication in the workplace and community

👤 Personal Life

- Married
- Hobbies: Walking, Watching movies and soccer games, Reading, Traveling
- Completely healthy

👥 References

● [Dr. Mohamad Jafar Kermani](#)

(1) Professor, Department of Mechanical Engineering, Amirkabir University of Technology, Iran

(2) Adjunct Research Fellow, Center for Solar Energy and Hydrogen Research Baden-Württemberg, Germany

Email: mkermaniaut.ac.ir

● [Dr. Saeed Movahed](#)

Department of Physics, North Carolina State University, Raleigh, NC 27695, United States of America

Emails: smovahe2@ncsu.edu, movahed.saeid84@gmail.com

● [Dr. Mohammad Mahdi Abdollahzadeh](#)

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● [Mr. Masoud Asadi](#)

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