# PERSONAL INFORMATION

Nationality: Iranian

Birth: 11th May 1983 (Tabriz-Iran) Marital status: Single

# EDUCATION

* Ph. D. Mechanical Engineering (Energy Conversion) Division, Mechanical Engineering Department, University of Tabriz, 23/09/2010-19/12/2013, Tabriz, Iran. **Supervisors: Prof. Seyed Mohammad Seyed Mahmoudi & Prof. Mortaza Yari Advisors: Prof. Marc A. Rosen & Prof. Tatiana Morosuk**
* M.Sc. Mechanical Engineering (Energy Conversion) Division, Mechanical Engineering Department, University of Tabriz, 23/09/2007-30/12/2009, Tabriz, Iran. **Prof. Seyed Mohammad Seyed Mahmoudi**
* B.Sc. Mechanical Engineering (Fluid and Heat Transfer) Division, Mechanical Engineering Department, University of Tabriz, 04/02/2002-21/09/2006, Tabriz, Iran**: Prof. Moharram Jafari**

# EMPLOYMENT HISTORY

* 22 September 2008-23 September 2010 Teacher Assistant, University of Tabriz, Tabriz, Iran (Thermodynamics, Fluid Mechanics, Heat Transfer, Engineering Mathematics).
* 22 September 2008-3 February 2009 Teacher Assistant, Azad University of Tabriz, Tabriz, Iran (Thermodynamics).
* 4 February 2011-21 September 2011 Teaching Thermodynamics, Fluid Mechanics, Heat Transfer, Azad University of Tabriz, Tabriz, Iran
* 4 February 2011-21 September 2011 Teaching Fluid Mechanics Lab, University of Tabriz, Tabriz, Iran
* 19 December 2013 – 20 July 2024 (part time associate professor) Teaching Thermodynamics, Solar Energy and Cogeneration and related courses & Research, University of Nabi Akram Tabriz & University of Tabriz
* 1August 2024 Now Assistant Professor, Antalya Bilim University, Antalya, Turkey.

# RESEARCH EXPERIENCE

* 4 February 2002- 21 September 2010 Vice-Researcher of manufacturing Lab in Mechanical Engineering topic, Azar Filer., Tabriz, Iran.
* **B.Sc**. Project: Advanced Analysis of Air Conditioning.
* **M.Sc**. Thesis: Thermodynamic Analysis of a Gas Turbine Power Plant with Fogging Inlet Cooling.
* **Ph.D**. Dissertation: Advanced Exergoeconomic Analysis of a Combined Cycle with Biomass fuels.
* **After graduation**. Biomass and biomass co-fired power plants with hydrogen production & solar energy especially evaluation and implementation of a hybrid photovoltaic thermal (PV/T) (glass- to-glass) system in a combined cycle by biomass fuel

Clean water production using desalination units such as Reverse osmosis desalination unit and Humidification-dehumidification desalination unit

Carbon dioxide capture using cold energy mainly by LNG Geothermal power generation cycle

# INTERESTS

* **Thermodynamics (Research and Teaching)**: Power Plants, Renewable Energy, Biomass Gasification, Hydrogen production, Solar energy, Clean water production, Carbon dioxide capture, Geothermal power generation cycle, Exergy and Exergoeconomic Analyses, Advanced Exergy and exergoeconomic Analyses

## Heat Transfer (Teaching)

* **Fluid Mechanics (Teaching)**
* **Engineering Mathematics (Teaching)**

# HONORS

* Nominated as the Best Paper for the International Conference on Smart Energy Grid Engineering (SEGE’14) 11-13 August, 2014 UOIT, Oshawa, Canada
* Scientific Committee member of 4th International Conference on Sustainable Thermal Energy Management (SusTEM2017) 28-29 June Netherlands
* Organizing Committee Member of 6th World Congress on Biofuels and Bioenergy conference September 05-06, 2017, London, UK
* Chair of sessions and Member of Organizing Committee, Green Energy and Expo September 21-23, 2015, Orlando, USA
* Nominated as the Outstanding and Recognized Reviewer for the Journals of Energy Conversion and Management, Energy, Biomass and Bioenergy, and Renewable Energy (Elsevier)
* Editor, Chair of sessions, Member of Organizing Committee and reviewer, Athens Institute for Education and Research (ATINER)
* Member of technical program committee for the International conference on Big Data, Advanced wireless and Communication BDAW November 10-11, 2016, American University in Bulgaria, Blagoevgrad, Bulgaria
* Author of Three Most Viewed Articles in Elsevier
* Editor, Invited speaker and scientific reviewer to the New Energy and Future Energy System (NEFES 2016) August 19-22, 2016 Beijing, China
* Member of technical program committee for the 2016 International Conference on Energy, Environment and Natural Resources, May 27-28, 2016, Hangzhou, China
* Invited speaker to the Fourth International Conference on Natural Polymers, Bio- Polymers, Bio-Materials, their Composites, Nana composites, Blends, IPNs, Polyelectrolytes and Gels: Macro to Nano Scales (ICNP – 2015): April 10, 11 & 12, 2015, Kottayam, Kerala, India
* Invited speaker to the 3rd International Symposium on Energy Challenges and Mechanics 7th-9th July 2015, Aberdeen, Scotland, United Kingdom
* Invited speaker to the Global Energy Engineering Summit & Expo November 02-04 2015, Beijing, China
* Invited speaker to the 2nd Annual Global Congress of Knowledge Economy (GCKE) November 13-15 2015, Qingdao, China.
* Guest speaker to the 2nd International Conference on Past and Present Research Systems of Green Chemistry September 14-16 2015, Orlando, USA.
* Invited speaker to the Global Food Security and Sustainability June 13-15, 2016, Beijing, China.
* Invited speaker to the International Conference and Exhibition on Marine Drugs and Natural Products July 25-27 2016 Melbourne, Australia.
* Invited speaker to the Sixth International Symposium on Energy Challenges and Mechanics (ECM6) - towards a big picture 14 -18 August 2016 Inverness, Scotland, UK.
* Invited speaker to the International Conference and Exhibition on Polymer Chemistry November 14-16, 2016 Atlanta, USA.
* Invited speaker to the EMN Meeting on Bioenergy April 4-7, 2016 Phuket, Thailand.
* Invited speaker to the Euro Global Summit and Expo on Biomass August 08-09, 2016 Birmingham, UK.
* Invited speaker to the 3rd International Conference on Past and Present Research Systems of Green Chemistry September 19-21, 2016 Las Vegas, Nevada, USA
* Invited speaker to the World Conference & Expo on Petrochemistry & Natural Resources” (Petrochemistry-2016) October 24-26, 2016, Dubai, UAE.
* Invited speaker to the "World Bioenergy Congress and Expo” (Bioenergy 2016), June 13- 14, 2016, Rome, Italy.
* Invited speaker to the BIT’s 6th Low Carbon & Green Growth Earth Summit: Smart

Environment and Low Carbon Eco-City of Forum GG5: Smart Green City, June 30-July 3, 2016, Gyeonggi-do, South Korea.

* Invited speaker to the World Biodiesel Congress & Expo, December 05-07, 2016 at San Antonio, USA.
* Invited speaker to the International Conference on Power & Energy Engineering, September 29-30, 2016, London, UK.
* Invited speaker to the 2nd International Congress and Expo on Biofuels & Bioenergy, August 29-31, 2016, Sao Paulo, Brazil.
* Invited speaker at the “2nd International Conference and Exhibition on Automobile Engineering”, Nov 28- 29, 2016, Berlin, Germany.

# PUBLICATIONS

**Journal papers**

* Soltani S., Mahmoudi S.M.S., Yari M., and Rosen M.A., Thermodynamic Analyses of a Biomass Integrated Fired Combined Cycle, *Applied Thermal Engineering* 59 (2013) 60- 68 (**Most Viewed Article**).
* Soltani S., Mahmoudi S.M.S., Yari M., and Rosen M.A., Thermodynamic analyses of an externally fired gas turbine combined cycle integrated with a biomass gasification plant, *Energy Conversion and Management* 70 (2013) 107–115.
* Soltani S., Mahmoudi S.M.S., Yari M., Morosuk T., Rosen M.A., and Zare V., A comparative exergoeconomic analysis of two biomass and co-firing combined power plants, *Energy Conversion and Management* 76 (2013) 83–91.
* Soltani S., Yari M., Mahmoudi S.M.S., Morosuk T., and Rosen M.A., Advanced exergy analysis applied to an externally-fired combined-cycle power plant integrated with a biomass gasification unit, *Energy* 59 (2013) 775-780.
* Athari H., Soltani S\*(**Corresponding author**)., Mahmoudi S.M.S., Rosen M.A., and Morosuk T., Exergy analysis of a gas turbine cycle with fogging inlet cooling, *International Journal of Exergy* Vol. 18, No. 1 (2015) 104-127.
* Athari H., Soltani S\*., Mahmoudi S.M.S., Rosen M.A., and Morosuk T., Exergoeconomic analysis of a biomass post-firing combined-cycle power plant, *Energy* 77 (2014) 553- 561(**Most Viewed Article**).
* Athari H., Soltani S\*., Bölükbaşi A., Rosen M.A., and Morosuk T., Comparative exergoeconomic analyses of the integration of biomass gasification and a gas turbine power plant with and without fogging inlet cooling, *Renewable Energy* 76 (2015) 394- 400 (**Most Viewed Article-900 times**).
* Soltani S\*., Athari H., Rosen M.A., Mahmoudi S.M.S., and Morosuk T., Thermodynamic analyses of biomass gasification integrated externally fired, post-firing and dual-fuel combined cycles, *Sustainability 2015, 7, 1248-1262; doi:10.3390/su7021248*.
* Athari H., Soltani S\*., Rosen M.A., Mahmoudi S.M.S., and Morosuk T., Thermodynamic analysis of a power plant integrated with fogging inlet cooling and a biomass gasification, *Sustainability 2015, 7, 1292-1307; doi:10.3390/su7021292*.
* Athari H., Soltani S\*., Mahmoudi S.M.S., Rosen M.A., and Morosuk T., Energy and exergy analyses of power generation via an integrated biomass post-firing combined- cycle, *International Journal of Process Systems Engineering* Vol. 3, Nos. 1/2/3 2015*,* 57

– 69, DOI: 10.1504/071428.

* Athari H., Soltani S\*., Rosen M.A., Mahmoudi S.M.S., and Morosuk T., Comparative exergoeconomic analyses of gas turbine steam injection cycles with and without fogging inlet cooling, *Sustainability 2015, 7, 12236-12257; doi:10.3390/su70912236*.
* Athari H., Soltani S\*., Rosen M.A., Mahmoudi S.M.S., and Morosuk T., Gas turbine steam injection and combined power cycles using fog inlet cooling and biomass fuel: A thermodynamic assessment, *Renewable Energy*, *92 (2016) 95–103.*
* Athari H., Soltani S\*., Rosen M.A., Kordoghli Gavifekr M., and Morosuk T., Exergoeconomic study of gas turbine steam injection and combined power cycles using fog inlet cooling and biomass fuel, *Renewable Energy, 96 (2016) 715-726*.
* Athari H., Soltani S\*., Rosen M.A., Mahmoudi S.M.S., and Morosuk T., A comparative exergoeconomic analysis of three biomass post-firing and co-firing combined power plants, *Biofuels, VOL. 8, NO. 1,(2017) 1-15*.
* Moharamian A., Soltani S\*., Rosen M.A., Mahmoudi S.M.S., and Morosuk T. A comparative thermoeconomic evaluation of three biomass and biomass-natural gas fired combined cycles using organic Rankine cycles, *Journal of Cleaner Production 161C (2017) pp. 524-544.*
* Moharamian A., Soltani S\*. Ranjbar F., Yari M., Rosen M.A. Thermodynamic analysis of a wall mounted gas boiler with an organic Rankine cycle and hydrogen production unit, *Energy & Environment*. DOI: 10.1177/0958305X17724211.
* Moharamian A., Soltani S\*., Rosen M.A., Mahmoudi S.M.S. Exergoeconomic and thermodynamic analyses of an externally fired combined cycle with hydrogen production and injection to the combustion chamber. *International Journal of Hydrogen Energy 43(2) (2018) 781–792*.
* Moharamian A., Soltani S\*., Rosen M.A., Mahmoudi S.M.S., Morosuk T. Exergoeconomic analysis of a natural gas fired and biomass post-fired combined cycle with and without hydrogen injection into the combustion chamber, *Journal of Cleaner Production, 180 (2018) 450–465*.
* Moharamian A., Soltani S\*., Rosen M.A., Mahmoudi S.M.S. Advanced exergy and advanced exergoeconomic analyses of biomass and natural gas fired combined cycles with hydrogen production, *Applied thermal engineering, 134, (2018) 1–11.*
* Soltani S. Modified exergy and exergoeconomic analyses of a biomass post fired hydrogen production combined cycle. *Renewable Energy, 135, (2019) 1466-1480.*
* Moharamian A., Soltani S\*., Rosen M.A., Mahmoudi S.M.S., Bhattacharya T. Modified exergy and modified exergoeconomic analyses of a solar based biomass co-fired cycle with hydrogen production*, Energy 167 (2019) 715-729.*
* Moharamian A., Soltani S., Rosen M.A., Mahmoudi S.M.S., Jafari M\*. Conventional and enhanced thermodynamic and exergoeconomic analyses of a photovoltaic combined cycle with biomass post firing and hydrogen production. *Applied Thermal Engineering 160 (2019) 113996.*
* Moharamian A., Habibzadeh A., Soltani S\*., Rosen M.A., Mahmoudi S.M.S. Advanced evaluation of a biomass externally fired hydrogen production combined cycle, *Chemical Engineering & Technology. doi: 10.1002/ceat.202100180*
* Adibi T., Razavi SE., Adibi O., Soltani S\*. A Characteristics Based modeling of Natural Convection, Conduction, and Radiation in a Trapezoidal Cavity containing square object. Heat Transfer, DOI: 10.1002/htj.22628.
* Moharamian A., Adibi T., Ghahramani MA, Soltani S\*., Rosen M.A., Mahmoudi

S.M.S. Thermodynamic and exergoeconomic analyses of a novel solar-based externally fired biomass combined, International Journal of Ambient Energy, doi: 10.1080/01430750.2022.2142280.

* Sharafi laleh S., Zeinali M., Mahmoudi S.M.S., Soltani S\*., Marc A. Rosen. Biomass co-fired combined cycle with hydrogen production via PEM electrolysis and waste heat recovery: Thermodynamic assessment. International Journal of Hydrogen Energy, 48 (87), 2023, 33795-33809**.**
* Shayan Sharafi laleh, Fatemeh Parnian Gharamaleki, SeyedHamed Fatemi Alavi, Saeed Soltani\*, S.M.S Mahmoudi, Marc A. Rosen. A novel sustainable biomass- fueled cogeneration cycle integrated with carbon dioxide capture utilizing LNG regasification and green hydrogen production via PEM electrolysis: Thermodynamic assessment. Journal of Cleaner Production, *421 (2023) 138529*.
* Nima Ghasemzadeh, Shayan Sharafi Laleh, Saeed Soltani\*, Morteza Yari\*, Marc

A. Rosen. Using green energy system sources in trigeneration systems to reduce environmental pollutants: Thermodynamic and Environmental evaluation. Sustainability, 2023, 15(17), 13222.

* F. Alavi S. Hamed., Javaherian A., Mahmoudi S.M.S., Soltani S\*., Marc A. Rosen. Coupling a gas turbine bottoming cycle using CO2 as the working fluid with a gas cycle: Exergy analysis considering combustion chamber steam injection. Clean Technol. 2023, 5, 1115–1139. <https://doi.org/10.3390/cleantechnol5030056>.
* Sharafi laleh S, F. Alavi S, Soltani S\*, Mahmoudi S.M.S, Rosen M.A. A novel supercritical carbon dioxide combined cycle fueled by biomass: thermodynamic assessment. Renewable Energy, 222, 119874, 2024.
* Shayan Sharafi Laleh, Ali Safarpour, Arash Shahbazi Shahrak, Seyed Hamed Fatemi Alavi, Saeed Soltani\*. Thermodynamic and exergoeconomic analyses of a novel biomassfired combined cycle with solar energy and hydrogen and freshwater production in sports arenas. International Journal of Hydrogen Energy, 59, 2024, 1507-1517.
* Fatemeh Parnian Gharamaleki, Shayan Sharafi Laleh, Nima Ghasemzadeh
\*, Saeed Soltani \*, Marc A. Rosen. Optimization of a Biomass-based Power and Fresh Water Generation System by Machine Learning using Thermoeconomic and Environmental Assessments. Sustainability. <https://doi.org/10.3390/su16208956>.
* Ali Safarour, Shayan Sharafi Laleh, Saeed Soltani\*. Benefits, and Recommendations for Utilizing Solar Panels in Sport Stadiums: A Thematic Analysis. Progress in Engineering Science. <https://doi.org/10.1016/j.pes.2024.100035>.
* Shayan Rabet, S.M.S Mahmoudi, Mortaza Yari, Saeed Soltani\*. Dual-combustion chamber cycle utilizing biomass and geothermal energy: A comprehensive economic analysis and multi-objective optimization for enhanced multi-generation, Renewable Energy. https://doi.org/10.1016/j.renene.2025.122760.

# Conference papers

* Soltani S\*., Athari H., Mahmoudi S.M.S., Rosen M and Morosuk T., Energy and exergy analyses of power generation via an integrated biomass post‐firing combined‐cycle, *International Conference on Smart Energy Grid Engineering (SEGE’14) 11-13 August, 2014 UOIT, Oshawa, Canada* **(Best Paper)**.
* Soltani S\*., Mahmoudi S.M.S., Yari M., and Mehr A.S., Thermodynamic analysis of an externally fired Gas turbine (EFGT) combined cycle with biomass gasification, *21st Annual International Conference on Mechanical Engineering Tehran Iran.*
* Mehr A.S., Mahmoudi S.M.S., and Soltani S., Utilizing the waste heat in EETC CO2 cycle by means of single-effect absorption refrigeration cycle, *21st Annual International Conference on Mechanical Engineering Tehran Iran.*
* Soltani S., Exergy analysis of Gas turbine inlet Fogging cooling, 3rd Annual *International Conference on Mechanical Engineering Esfahan Iran*.
* Soltani S\*., Athari H., Rosen M., Mahmoudi S.M.S., and Morosuk T., Thermodynamic Analyses of Biomass Post-Firing and Co-Firing Combined Cycles, *In Proceedings of the 4th World Sustain. Forum,* 1 - 30 November 2014; Sciforum Electronic Conference Series, Vol. 4, 2014, e019; doi:10.3390/wsf-4-e019.
* Athari H., Soltani S\*., Rosen M., Mahmoudi S.M.S., and Morosuk T., Thermodynamic Analysis of a Power Plant Integrated with Fogging Inlet Cooling and a Biomass Gasification, *In Proceedings of the 4th World Sustain. Forum,* 1 - 30 November 2014; Sciforum Electronic Conference Series, Vol. 4, 2014, e020; doi:10.3390/wsf-4-e020.
* Athari H., Bolukbasi A., Soltani S., and Ciloglu D., The utiliziation of FSI technique and two-way particle coupling system on particle dynamics in the human alveoli, EFAT 2016, 12th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics, Costa del Sol, Spain 11-14 July 2016.
* S. Sharafi Laleh, S.M.S Mahmoudi, S. Soltani, and T. Morosuk, “Energy and exergy analyses of an advanced combined cycle fired by natural gas and biomass,” The 16th Conference on Research and Development in Power Engineering 28 November – 1 December 2023, Warsaw, Poland.

REFEREE OF INTERNATIONAL JOURNALS

* Energy Conversion and management (Elsevier)
* Energy (Elsevier)
* Sustainable Energy Technologies and Assessments (Elsevier)
* Applied Thermal Engineering (Elsevier)
* International Journal of Exergy (Inderscience)
* Canadian Journal CSME
* Biofuels (Taylor & Francis)
* African Journal of Biotechnology
* Journal of Computational Methods in Sciences and Engineering (JCMSE)
* IBIMA Publishing, USA

Engineering (IJEE)

* Energy Reports (Elsevier)
* Engineering Science and Technology, an International Journal (Elsevier)
* American Journal of Energy Research
* ECOS
* Scientia Iranica
* Energy and Fuels
* Renewable Energy (Elsevier)
* Biomass & Bioenergy (Elsevier)
* Case Studies in Thermal Engineering (Elsevier)
* International Journal of Hydrogen Energy (Elsevier)
* Thermal Science and Engineering Progress (Elsevier)
* Environmental Science &

Technology

* Cleaner Production (Elsevier)
* Applied Energy (Elsevier)
* Desalination and Water Treatment
* Propulsion and Power Research
* International Journal of Energy Research
* Frontiers in Energy Research
* International Journal of Ambient Energy
* International Journal of Sustainable Energy
* Heliyon
* Process Safety and Environmental Protection
* Fuel
* Energy Nexus
* International Journal of Energy