

Assoc. Prof. Shiva Gorjian

CONTACT DETAILS

- Visiting scholar (Fellowship Holder)
Fraunhofer-Institut für Solare Energiesysteme ISE
Heidenhofstr. 2
79110 Freiburg, Germany
- **Biosystems Engineering Department**
Faculty of Agriculture
Tarbiat Modares University (TMU)
Tehran, Iran
- **Renewable Energy Department**
Faculty of Interdisciplinary Science & Technology
Tarbiat Modares University (TMU)
Tehran, Iran

Office Phone: 021 4829 2303

Mobile: +49 1521 2525 906

Email addresses: Gorjian@modares.ac.ir; shiva.gorjian@ise-extern.fraunhofer.de

Home pages:

<https://scholar.google.com/citations?user=qFIprQIAAAAJ&hl=en>

<https://www.linkedin.com/in/shivagorjian/>

EDUCATION

- PhD | 2009-2013 | Tarbiat Modares University (TMU), Tehran, Iran
- MSc | 2007-2009 | Tarbiat Modares University (TMU), Tehran, Iran
- BSc | 2002-2006 | Bu-Ali-Sina University, Hamedan, Iran

WORK EXPERIENCES

- Visiting scholar at Fraunhofer-Institut für Solare Energiesysteme ISE, Freiburg, Germany 2023-now
- Visiting scholar at Iran's Ministry of Industry, Mining, Trade, Office of Agricultural and Mining Machinery 2022-2023
- University Professor, Biosystems Engineering Department, Faculty of Agriculture, Tarbiat Modares University (TMU) 2016-now
- Renewable Energy Department, Interdisciplinary Science and Technology Faculty, Tarbiat Modares University (TMU) 2018-now
- Vice-chancellor of the "Renewable Energy Research Institute-RERI", Tarbiat Modares University (TMU) 2018-now
- Visiting Researcher at Leibniz Institute for Agricultural Engineering and Bioeconomy (ATB), Potsdam, Germany 2019-2020
- Sessional Lecturer, Biosystems Engineering Department, Tarbiat Modares University (TMU) (2014-2016) 2014-2016
- Postdoctoral Research Fellow, Renewable Energy Research Institute (RERI), Tarbiat Modares University, Tehran, Iran 2014-2016

FIELDS OF INTEREST

- Renewable Energy Applications in Agriculture (AgroRenewables)
- Solar Photovoltaics (PV); PV power plants; Agrivoltaic systems
- Solar Thermal Photovoltaics (PVT); Solar Thermal Desalination;
- Solar Greenhouses; Solar Dryers;

- Modeling and Simulation of Energy and Energy Storage Systems
- Energy and Exergy Analysis.

ABILITY AND SKILLS

SOFTWARE SKILLS

- SOLIDWORKS
- ANSYS Fluent, TRNSYS, TracePro
- PVsyst, RETScreen
- Microsoft Office, SIGMAPLOT, Photoshop
- Mendeley Reference Manager

LANGUAGES

- Persian (Native language)
- English (C2)
- German (B1)

EXECUTIVE ACTIVITIES

- **Main author member** of the IEA Task 13 (2024), ST 2.2 Agrivoltaics.
- **Expert Member of the Green Assist Team**, Green Advisory Service for Sustainable Investments Support (Since 2022)
- **Member of the Executive Committee (2022)**
International Conference on Clean Energy Technologies and Assessment (CETA2022), in Katowice (Poland) on, December 7-9.
- **Member of the Executive Committee (2021)**
International Conference on Recent Progress in Material Science and Mechanical Engineering (ICRPMSME), Government Engineering College, Gandhinagar, India, May 28-29
- **Member of Research Council (2017-2021)**
Faculty of Agriculture, Tarbiat Modares University (TMU), Tehran, Iran.
- **Member of Management Committee (2018-now)**
Renewable Energy Engineering, Faculty of Interdisciplinary of Science & Technology, Tarbiat Modares University (TMU), Tehran, Iran.
- **Member of the Executive Committee (2021)**
13th Iranian National Congress on Biosystems Engineering and Mechanization, September 15-17. Tarbiat Modares University (TMU), Tehran, Iran.
- **Member of Scientific Committee (2021)**
13th Iranian National Congress on Biosystems Engineering and Mechanization, September 15-17. Tarbiat Modares University (TMU), Tehran, Iran.

EDITORIAL EXPERIENCES

Sustainable Environmental Transition through Solar Thermal and Bio-Energy (SET-STBE), Environmental Science and Pollution Research (Springer)

Guest Editor; 2021

Advanced Applications of Solar Energy in Agricultural Greenhouses, Frontiers in Energy Research (Frontiers)

Guest Editor; 2021

Feasibility, Efficiency, and Sustainability of Renewable Energy Applications in Agriculture. Sustainable Energy Technologies and Assessments (Elsevier)

Managing Guest Editor, 2021

Adoption of Renewable Energy Technologies (RETs) to Achieve Sustainability. Sustainability (MDPI)
Emerging Renewable and Sustainable Energy Technologies, Sustainability (MDPI)

Guest Editor; 2021

Guest Editor; 2020

TEACHING EXPERIENCES

TARBIAT MODARES UNIVERSITY | 2014-NOW

Courses for Master students

- Potentiometric and Efficiency of Renewable Energies
- Advanced Measurements Systems Laboratory
- Photovoltaics in Agriculture
- Environmental Impacts of Renewable Energies
- Design of Energy Systems
- Basics of Renewable Energies

Courses for PhD students

- Exergy
- Pinch Technology

ISLAMIC AZAD UNIVERSITY OF ROUDEHEN, TEHRAN, IRAN | 2009-2010

Courses for Bachelor students

- Physics and Mechanics of Agricultural Soils
- Basics of Agricultural Machinery

HONORS AND AWARDS

- Alexander von Humboldt Fellowship (Germany) (2023-2024).
- World Ranking of Top 2% Scientists in 2022 and 2023 according to the Scopus database.
- Award Winning Book by the "Vice Chancellor for Research and Technology of Tarbiat Modares University (2021).
- Award Winning Book by the "Third Festival of National Book of Agriculture and Natural Resources (2021).
- First place winner in Novel Ideas in Evaporative Exploration in Brine Environments, Geology and Mineral Exploration Organization of Iran (2017).
- Second Place Winner in The First "Energy Ideas Award" Festival (2011), Semnan University, Iran.
- Postdoctoral Fellowship, Tarbiat Modares University (TMU) (2013).
- First Ranked PhD Graduate (2013).
- First Ranked MSc Graduate (2009).
- Third Ranked BSc Graduate (2006).

WORKSHOPS AND PRESENTATIONS

- **Invited speaker:** Online Meetings of the Worldwide Energy Network- Distinguished Lecture Program of SERC 2022-Solar Energy Research Center (FONDAP SERC Chile 15110019).
- **Invited speaker:** 13th International Conference on Applied Energy- Organized by Elsevier. (Nov 29-Dec 2, 2021).
- **Invited speaker:** International Conference on Smart Advanced Material Science & Engineering Applications. Department of Physics, K.L.E.F., Guntur, Andhra Pradesh, India. Affiliation: K L University (2020).
- **Specialized Workshop:** "Applications of Photovoltaic Solar Energy Technology in Agricultural Sector". Ministry of Energy, Renewable Energy, and Energy Efficiency Organization (SATBA), Tehran, Iran (2020).
- **Inviter speaker:** GUJCUST-DST sponsored Webinar "Solar Energy Application in Present Era", Mechanical Engineering Department, Government Engineering College Patan, India (2020).
- **Keynote Speaker:** International Conference of Energy, Environment, and Health Engineering (EEH2020), UK.
- **International Seminar:** "International Seminar on Photovoltaic Thermal Hybrid Solar Collectors; Principles and Techniques", University in Guntur, India (2020).
- **Plenary talk:** "Point-focus Concentrating Solar Power Generation: Challenges and Prospects", Innovative Applied Energy (IAPE, 2019). Oxford City, United Kingdom.

- **Invited speaker:** “Solar Thermal Desalination Systems” in a Professional Seminar on “Unconventional Water Recourses, Challenges, and Opportunities”, Iran’s Organization of Country’s Water Resources Management (2018).
- **Plenary talk:** “Solar Thermal Desalination Systems: Challenges and Prospects”, Renewable and Sustainable Energy: Sustaining Sustainable Energies for Sustained Growth, Paris, France (2018).
- **Invited speaker:** “Food, Water and Energy Nexus”, Seminar Organized by SERA, an NGO of Environment Conservation, Rasht, Iran (2018).
- **Workshop:** “Mendeley Reference Manager” (2017), Tarbiat Modares University, Tehran, Iran.
- **Trainer of the Renewable Energy and Energy Efficiency and PV Business Development programs**, by the Renewables Academy AG (RENAC), based in Berlin, Germany.
- **Trainer of the “Introduction to Power Systems” online program**, by the Renewables Academy AG (RENAC), based in Berlin, Germany.

PUBLICATIONS

JOURNAL PAPERS

- Vaziri Rad, M. A; Forootan Fard, A; Khazanedari, K; Toopshekan, A; Ourang, Sh; Khanali, M; [Gorjian, Sh](#); Fereidooni, L; Kasaeian, A. A global framework for maximizing sustainable development indexes in agri-photovoltaic-based renewable systems: Integrating DEMATEL, ANP, and MCDM methods. *Journal of Applied Energy*. 2024. 360; 122715. (IF:11.446).
- Farvardin, M; Taki, M; Gorjian, Sh; Shabani, E; Sosa-Savedra, J. C. Assessing the Physical and Environmental Aspects of Greenhouse Cultivation: A Comprehensive Review of Conventional and Hydroponic Methods. *Sustainability*. 2024. 16 (3), 1273 (IF:3.889).
- Hosseini, A; Banakar, A; [Gorjian, Sh](#); Jafari, A. Experimental and numerical investigation of the melting behavior of a phase change material in a horizontal latent heat accumulator with longitudinal and annular fins. *Journal of Energy Storage*. *Journal of Energy Storage*. 2024. 82, 110563 (IF:9.4)
- Mokhtarzadeh, H; [Gorjian, Sh](#). Design, simulation, and analysis of a solar parking carport Case study: parking lot of Tarbiat Modares University (Faculty of Agriculture). *Energy Engineering and Management*. 2023.
- Karimi Yayshahri, E; [Gorjian, Sh](#); Minaei, S. Experimental Performance Evaluation of a Hybrid Parabolic Solar Lighting System for Use in Agricultural Environments. *Energy Technology*. 2023. 11 (12); 2300546 (IF:3.8).
- Parajuli, S., Bhattarai, T. N., [Gorjian, Sh.](#), Vithanage, M., Paudel, Sh. R. Assessment of potential renewable energy alternatives for a typical greenhouse aquaponics in Himalayan Region of Nepal. *Journal of Applied Energy*. 2023. 344, 121270 (IF:11.446).
- [Gorjian, Sh.](#), Jalili Jamshidian, F., Gorjian, A., Faridi, H., Vafaei, M., Zhang, F., Liu, W., Campana, P. E. Technological advancements and research prospects of innovative concentrating agrivoltaics. *Journal of Applied Energy*. 2023. 337, 120799 (IF:11.446).
- Mahdi, Sh., Asghari, A., Ghobadian, B., Dehghani Soufi, M., Satari, B., [Gorjian, Sh.](#), Khanian-Najaf-Abadi, M. Potential of Pistacia atlantica mutica (Baneh) oil as a biodiesel feedstock using ultrasonic-assisted intensification process. *Journal of Biofuels*. 2023. (IF:2.731).
- Yildizhan, H., Yıldırım, C., [Gorjian, Sh.](#), Ameen, A. How May New Energy Investments Change the Sustainability of the Turkish Industrial Sector? *Sustainability*. 2023. 15(2), 1734 (IF:3.889).
- Esmaeili Shayan, M., Najafi, Gh., Ghobadian, B., [Gorjian, Sh](#). The role of digitalization in hybrid microgrids including renewable energy sources (In Persian). *Journal of Energy Planning and Policy Research*. 2022; 7;3, 1-30.
- Bahadoran, K., Banakar, A., Khoshtaghaza, M. H., [Gorjian, Sh](#). Simulating and Evaluating the Effects of Air Passing through a Linear Parabolic Solar Collector on Some Properties of Leaving Air. *Journal of Biomechanism and Bioenergy Research*. 2022. 1(2), 56-60.

- Shayan, M. E., Najafi, G., Ghobadian, B., **Gorjian, Sh.**, Mamat, R., & Ghazali, M. F. Multi-microgrid optimization and energy management under boost voltage converter with Markov prediction chain and dynamic decision algorithm. *Renewable Energy*. 2022 (IF:8.7).
- Sangeetha, A., Shanmugan, S., & **Gorjian, Sh.** Experimental evaluation and thermodynamic Gibbs free energy analysis of a double-slope U-shaped stepped basin solar still using activated carbon with ZnO nanoparticles. *Journal of Cleaner Production*. 2022. 380(2); 135118 (IF:11.072).
- Shearian Sattari, M., Ghobadian, B., **Gorjian, Sh.** A Critical Review on Life-Cycle Assessment and Exergy Analysis of Enomoto Bio-Gasoline Production. *Journal of Cleaner Production*. 2022. 379(1); 134387 (IF:11.072).
- Prabu, A. S., Chithambaram, V., Sengottaiyan, Sh., Cavaliere, P., **Gorjian, Sh.**, Aissa, A., Mourad, A., Pardhasaradhi, R., Muthucumaraswamy, P., Elsayed Essa, F. A., & Elsheikh, A. H., The performance enhancement of solar cooker integrated with photovoltaic module and evacuated tubes using ZnO/Acalypha Indica leaf extract: response surface study analysis. *Journal of Environmental Science and Pollution Research*. 2022; (IF:5.8).
- Aggarwal, R. K., Chandel, Shyam Singh., **Gorjian, Shiva.**, Chandel, Rahul. Research outcome of sustainable solar drying technology dissemination for preserving perishable agriculture and horticulture crops in the North Western Himalayan region of India. *Sustainable Energy Technologies and Assessments*. 2022; 53: 102732 (IF:8).
- Gorjian, A., Rahmati, E., **Gorjian, Sh.**, Anand, A., D. Jathar, L. A Comprehensive Study of Research and Development in Concentrating Solar Cookers (CSCs): Design Considerations, Recent Advancements, and Economics. *Journal of Solar Energy*. 2022. 245; 80-107 (IF:6.7).
- Aggarwal, R. K., Chandel, Sh., **Gorjian, Sh.**, Chandel, R. Research Outcome of Sustainable Solar Drying Technology Dissemination for Preserving Perishable -Agriculture-Crops During Past 40 Years in a Himalayan Region of India. *Sustainable Energy Technologies and Assessments*. 2022; 53 (C): 102732 (IF:8).
- Hesampour, R., Hasani, M., Yildizhan, H., Failla, S., **Gorjian, Sh.** Exergoenvironmental damages assessment in a desert-based agricultural system: A case study date production. *Agronomy Journal* (Wiley). 2022, 114 (6): 3155-3172 (IF:2.1)
- Esmaeili Shayan, M., Najafi, Gh., Ghobadian, B., **Gorjian, Sh.**, Mazlan, M. A novel approach of synchronization of the sustainable grid with an intelligent local hybrid renewable energy control. *International Journal of Energy and Environmental Engineering* (Springer Nature). 2023; 14: 35-46 (IF:2.6).
- Gorjian, Sh.**, Fakhraei, O., Gorjian, A., Sharafkhani, A., Aziznejad, A. Sustainable Food, and Agriculture: Employment of Renewable Energy Technologies. *Current Robotics Reports* (Springer Nature). 2022; 3: 153–163.
- Altouni, A., **Gorjian, Sh.**, Rahmati, E. Numerical Investigation of the Effect of Using Nanofluid (Al₂O₃-Water) on Thermodynamic Performance of PV/T System (In Persian). *Journal of Researches in Mechanics of Agricultural Machinery*. 2022. 11(1).
- Esmaeili Shayan, M., Najafi, Gh., Ghobadian, B., **Gorjian, Sh.**, Mazlan, M., Shabanzadeh, A. Flexible Photovoltaic System on Non-Conventional Surfaces: A Techno-Economic Analysis. *Sustainability*. 2022. 14(6), 3566 (IF:3.889).
- Aggarwal, R. K., Chandel, Sh., **Gorjian, Sh.**, Chandel, R. Research Outcome of Sustainable Solar Drying Technology Dissemination for Preserving Perishable -Agriculture-Crops During Past 40 Years in a Himalayan Region of India. *SSRN Electronic Journal*. 2022.
- Esmaeili Shayan, M., Najafi, Gh., Ghobadian, B., **Gorjian, Sh.** Modeling the Performance of Amorphous Silicon in Different Typologies of Curved Building-integrated Photovoltaic Conditions. *Iranian (Iranica) Journal of Energy & Environment*, 13(1), 87–97. 2022.
- Bhattarai, T., Ghimire, S., Mainali, B., **Gorjian, Sh.**, Treichel, H., R Paudel, Sh. Applications of Smart Grid Technology in Nepal: Status, Challenges, and Opportunities. *Journal of Environmental Science and Pollution Research*. 2022 (IF:5.8).
- Esmaeili Shayan, M., Najafi, Gh., Ghobadian, B., **Gorjian, Sh.**, Mazlan, M. Sustainable Design of a Near-Zero-Emissions Building Assisted by a Smart Hybrid Renewable Microgrid. *International Journal of Renewable Energy Development*. 2022; 11(2): 471-480.
- Gorjian, Sh.**, Bousi, E., Emre Özdemir, Ö., Trommsdorff, M., Manoj Kumar, N., Anand, A., Kant, K., S. Chopra, S. Progress and challenges of crop production and electricity generation in agrivoltaic systems using semi-transparent photovoltaic technology. *Journal of Renewable and Sustainable Energy Reviews*. 2022; 158: 112126. (IF:16.799).

- Ebadi, H., Gorjian, Sh., Sharon, H., Blanco-Galvez, J., Kumar, A. Investigation of design configurations and effective parameters on productivity enhancement of vertical diffusion solar stills. *International Journal of Environmental Science and Technology*. 2022; 19: 6889–6924 (IF:3.1).
- Altouni, A., Gorjian, Sh., Banakar, A. Development and performance evaluation of a photovoltaic-powered induction cooker (PV-IC): An approach for promoting clean production in rural areas. *Cleaner Engineering and Technology*. 2022; 6: 100373.
- Jalili Jamshidian, F., Gorjian, Sh., Shafieefar, M. Techno-economic assessment of a hybrid RO-MED desalination plant integrated with a solar CHP system. *Energy Conversion and Management*. 2022; 251: 114985 (IF:11.533)
- Shadidi, B., Najafi, GH., Haji Agha Alizade, H., Gorjian, Sh. Effect of COVID-19 on NO₂ and particular matter (PM) concentrations and reaffirmation of the need to use biofuels in the world. *Biofuels*. 2021. (IF: 2.956).
- Babaebazaz, A; Gorjian, Sh; Amidpour, M. Integration of a Solar Parabolic Dish Collector with a Small-Scale Multi-Stage Flash Desalination Unit: Experimental Evaluation, Exergy and Economic Analyses. *Sustainability*. 2021. 13(20). 11295. (IF:3.889).
- Altouni, A., Gorjian, Sh., Rahmati, E., Numerical Investigation on the Effect of Using Nanofluid (Al₂O₃-Water) on Thermodynamic Performance of PV/T System (In Persian). *Journal of Researches in Mechanics of Agricultural Machinery*. 2022; 11(1): 11-26.
- Eterafi, Sina., Gorjian, Shiva., Amidpour, Majid. Effect of Covering Aperture of Conical Cavity Receiver on Thermal Performance of Parabolic Dish Collector: Experimental and Numerical Investigations. *Journal of Renewable Energy and Environment*. 2021; 8(4): 1-13.
- Gorjian, Sh., Hosseingholilou, B., D Jathar, L., Samadi, H., Samanta, S., A Sagade, A., Kant, K., Sathyamurthy, R. Recent Advancements in Technical Design and Thermal Performance Enhancement of Solar Greenhouse Dryers. *Sustainability*. 2021. 13(13), 7025. (IF:3.889).
- Palanikumar, G., Shanmugan, S., Chithambaram, V., Gorjian, Sh., I. Pruncu, C., Essa, F.A., Kabeel, A.E., Panchal H., Janarthanan, B., Ebadi, H., Elsheikh, H., Selvaraju, P. Thermal investigation of a solar box-type cooker with nanocomposite phase change materials using flexible thermography. *Renewable Energy*. 2021; 178: 260-282 (IF: 8.7)
- Sharon, H., Prabha, C., Vijay, R., Mohammed Niyas, A., Gorjian, Sh. Assessing suitability of commercial fiber reinforced plastic solar still for sustainable potable water production in rural India through detailed energy-exergy-economic analyses and environmental impacts. *Journal of Environmental Management*. 2021; 295: 113034 (IF:8.910)
- Eterafi, S., Gorjian, Sh., Amidpour, M. Thermodynamic design and parametric performance assessment of a novel cogeneration solar organic Rankine cycle system with stable output. *Energy Conversion and Management*. 2021; 243: 114333 (IF:11.533)
- D. Jathar, Laxmikant., Ganesan, Sh., Gorjian, Shiva. An experimental and statistical investigation of concave-type stepped solar still with diverse climatic parameters. *Cleaner Engineering and Technology*. 2021; 4: 100137.
- Akbar, Alireza., Najafi, Gholamhassan., Gorjian, Sh., Kasaeian, Alibakhsh., Mazlan, Mohamed. Performance enhancement of a hybrid photovoltaic-thermal-thermoelectric (PVT-TE) module using nanofluid-based cooling: Indoor experimental tests and multi-objective optimization. *Sustainable Energy Technologies and Assessments*. 2021; 46: 101276 (IF:8)
- Ingrao, Carlo., Matarazzo, Agata., Gorjian, Sh., Adamczyk, Janusz., Failla, Sabina., Primerano, Patrizia., Huisingsh, Donald. Wheat-straw derived bioethanol production: A review of Life Cycle Assessments. *Science of The Total Environment*. 2021: 781: 146751 (IF:10.753)
- Gorjian, Sh., Ghobadian, Barat., Jalili Jamshidian, Farid., Sharon, H., Saadi, Sajad. Performance evaluation and economics of a locally-made stand-alone hybrid photovoltaic-thermal brackish water reverse osmosis unit. *Cleaner Engineering and Technology*. 2021; 2: 100078.
- Kant, K., Biwole, P.H., Shukla A., Sharma, A., Gorjian, Sh. Heat transfer and energy storage performances of phase change materials encapsulated in honeycomb cells. *Journal of Energy Storage*. 2021; 38: 102507 (IF:9.4)

- Bashiri, Shima., Ghobadian Barat, Dehghani Soufi Masoud., [Gorjian, Shiva](#). Chemical modification of sunflower waste cooking oil for biolubricant production through epoxidation reaction. *Materials Science for Energy Technologies*. 2021; 4: 119-127.
- Abd Allah, W.E., Tawfik, M.A., A. Sagade, A., [Gorjian, Sh.](#), Metwally, K.A., El-Shal, H. Methane production enhancement of a family-scale biogas digester using cattle manure and corn stover under cold climates. *Sustainable Energy Technologies and Assessments*. 2021; 45: 101163. (IF:8).
- [Gorjian, Sh.](#), Ebadi, H., Trommsdorff, M., Sharon, H., Demant, M., Schindele, S. The Advent of Modern Solar-powered Electric Agricultural Machinery: A Solution for Sustainable Farm Operations. *Journal of Cleaner Production*. 2021; 292: 126030 (IF:11.1).
- M Gandhi, A., Shanmugan, Sh., [Gorjian, Sh.](#), I. Pruncu, C., Sivakumar, S., H. Elsheikh, A., A. Essa, A., M. Omar, Z., Panchal, H. Performance enhancement of stepped basin solar still based on OSELM with traversal tree for higher energy adaptive control. *Desalination*. 2021; 502: 114926 (IF:11.211).
- Sathyamurthy, R., Balaji, D., [Gorjian, Sh.](#), Jenoris Muthiya, S., Bharathwaaj, R., Vasanthaseelan, S., A. Essae, F. Performance, combustion and emission characteristics of a DI-CI diesel engine fueled with corn oil methyl ester biodiesel blends. *Sustainable Energy Technologies and Assessments*. 2021; 43: 100981 (IF:8).
- [Gorjian, Sh.](#), Calise, F., Kant, K., Shamim Ahamed, Md., Copertaro, B., Najafi, Gh., Zhang, X., Aghaei, M., R Shamshiri, R. A review on opportunities for implementation of solar energy technologies in agricultural greenhouses. *Journal of Cleaner Production*. 2021; 285: 124807 (IF:11.072).
- Yildizhan, H., Taki, M., Özilgen, M., [Gorjian, Sh.](#) Renewable energy utilization in apple production process: A thermodynamic approach. *Sustainable Energy Technologies and Assessments*. 2021; 43:100956 (IF:8).
- [Gorjian, Sh.](#), Ebadi, H., Najafi, Gh., Chandel, Sh. S., Yildizhan, Hasan. Recent advances in net-zero energy greenhouses and adapted thermal energy storage systems. *Sustainable Energy Technologies and Assessments*. 2021; 43:100940 (IF:8).
- [Gorjian, Sh.](#), H. Sharon, Ebadi, H., Kant, K., Bontempo Scavo, F., Marco Tina, G. Recent Technical Advancements, Economics and Environmental Impacts of Floating Photovoltaic Solar Energy Conversion Systems. *Journal of Cleaner Production*. 2021; 278:124285 (IF:11.072).
- Shanmugan, S., [Gorjian, Sh.](#), Elsheikh, A. H., Essa, F.A., Omara, Z. M, Rahgu, A. V. Investigation into the Effects of SiO₂/TiO₂ Nanolayer on the Thermal Performance of Solar Box Type Cooker. *Energy Sources, Part A: Recovery, Utilization and Environmental Effects*. 2021; 43:21, 2724-2737 (IF:3.447).
- Thamizharasu, P., Shanmugan, S., [Gorjian, Sh.](#), Catalin, I. P., Essa, F.A., Panchal, H., Harish, M. Improvement of Thermal Performance of a Solar Box Type Cooker Using SiO₂/TiO₂ Nanolayer. *Journal of Silicon*. 2022; 14: 557–565 (IF:3.4).
- H. Sharon, K Reddy, Srinivas., [Gorjian, Sh.](#) Parametric Investigation and Year-round Performance of a Novel Passive Multi-Chamber Vertical Solar Diffusion Still: Energy, Exergy and Enviro-economic Aspects. *Journal of Solar Energy*. 2020; 831-846 (IF:7.188).
- [Gorjian, Sh.](#), Ebadi, H., Calise, F., Shukla, A., Ingrao, C. A Review on Recent Advancements in Performance Enhancement Techniques for Low-temperature Solar Collectors. *Journal of Energy Conversion and Management*. 2020; 222:113246 (IF:11.533).
- Shanmugan S., F.A. Essa., [Gorjian, Sh.](#), abd elnaby Kabeel, Ravishankar Sathyamurthy., A. Muthu Manokar. Experimental study on single slope single basin solar still using TiO₂ Nano layer for natural clean water invention. *Journal of Energy Storage*. 2020; 101522 (IF:9.4).
- Loni, R., E, Askari Asli-ardeh., Ghobadian, B., A.B. Kasaeian., [Sh, Gorjian.](#), G, Najafi., Evangelos Bellos. Research and review study of solar dish concentrators with different nanofluids and different shapes of cavity receiver: Experimental tests. *Renewable Energy*. 2020; 145, 783-804 (IF:8.7).
- Arkian, Amir Hossein., Najafi, Gholamhassan., [Gorjian, Shiva.](#), Loni, Reyhaneh., Bellos, Evangelos., Yusaf, Talal. Performance Assessment of a Solar Dryer System Using Small Parabolic Dish and Alumina/Oil Nanofluid: Simulation and Experimental Study. *Energies*. 2019;12(24): 4747 (IF:4.7).

- Jalili, F., Gorjian, Sh., Shafiee Far, M. An Overview of Solar Thermal Power Generation Systems. *Journal of Solar Energy Research*. 2019; 3, 301-312.
- Gorjian, Sh., Nematzadeh, Babak., E, Ludger, Shamshiri, R. R. Amanlou, Y (2019). Solar Photovoltaic Power Generation in Iran: Development, Policies, and Barriers. *Renewable and Sustainable Energy Reviews*. 106, 110-123 (IF:16.799).
- Ketabchi, F., Gorjian, Sh., Sabzehparvar, Saba., Shadram, Zahra., Ghoreishi, M. S., Rahimzadeh, H. Experimental Performance Evaluation of a Modified Solar Still Integrated with a Cooling System and External Flat-plate Reflectors. *Solar Energy*. 2019; 187: 137-146 (IF:7.188).
- Loni, R., E, Askari Asli-ardeh., Ghobadian, B., Sh, Gorjian. Experimental and Numerical Study on Dish Concentrator with Cubical and Cylindrical Cavity Receivers using Thermal Oil. *Energy*. 2018; 154, 168-181 (IF:9).
- Hosseini, A., Banakar, A., Gorjian, Sh. Development and Performance Evaluation of an Active Solar Distillation System Integrated with a Vacuum-Type Heat Exchanger. *Desalination*. 2018; 435, 45-59 (IF:11.211).
- Loni, R., E, Askari Asli-ardeh., Ghobadian, B., Sh, Gorjian. Numerical and experimental investigation of wind effect on a hemispherical cavity receiver. *Applied Thermal Engineering*. 2017; 126, 179-193 (IF:6.465).
- Loni, R., E, Askari Asli-ardeh., Ghobadian, B., Sh, Gorjian. Thermodynamic Analysis of a Solar Dish Receiver using Different Nanofluids. *Energy*. 2017; 133, 749-760 (IF:9).
- Gorjian, Sh., & Ghobadian, B. Solar thermal power plants: Progress and prospects in Iran. *Energy Procedia*. 2015; 75, 533-539.
- Gorjian, Sh., & Ghobadian, B. Solar desalination: A sustainable solution to water crisis in Iran. *Renewable and Sustainable Energy Reviews*. 2015; 48, 571–584. (IF:16.799)
- Gorjian, Sh., Ghobadian, B., Tavakkoli Hashjin, T. Modeling of solar radiation potential in Iran using artificial neural networks. *Journal of Agricultural Science and Technology (JAST)*. 2015; 17(20), 1707-1723 (IF:0.89).
- Gorjian, Sh., Tavakkoli Hashjin, T., Ghobadian, B., Banakar, A., & Tavakkoli Hashjin, T. Thermal Performance Evaluation of a Medium-Temperature Point-focus Solar Collector Using Local Weather Data and Artificial Neural Networks. *International Journal of Green Energy*. 2015; 12(5), 493-505 (IF:3.3).
- Gorjian, Sh., Ghobadian, B., Tavakkoli Hashjin, T., & Banakar, A. Experimental performance evaluation of a stand-alone point-focus parabolic solar still. *Desalination*. 2014; 352(3), 1–17 (IF:11.211).
- Gorjian, Sh., Ghobadian, B., Hashjin, T. T., & Banakar, A. Thermal Performance Evaluation of a Proposed Point-focus Solar Collector for Low Power Applications. *Iranian Journal of Science and Technology (IJST), Transactions of Mechanical Engineering*. 2014; 38(38M1+), 263–268 (IF:2.4).
- Gorjian, Sh., Hashjin, T. T., & Khoshtaghaza, M. H. Modeling the Kinetic of the thin-layer Drying of the Barberry Fruit Using Artificial Neural Network. *Journal of Food Science and Technology*. 2011; 45(11), 1–12. (In Persian).
- Gorjian, Sh., Hashjin, T. T., & Khoshtaghaza, M. H. Designing and optimizing a back propagation neural network to model a thin-layer drying process. *International Agrophysics*. 2011; 25(1), 13–19 (IF:3.1).
- Gorjian, Sh., Tavakkoli Hashjin, T., Khoshtaghaza, M. H., & Nikbakht, A. M. Drying Kinetics and Quality of Barberry in a Thin Layer Dryer. *Journal of Agricultural Science and Technology (JAST)*. 2011; 13(3), 303–314 (IF:0.89).

BOOKS

- Gorjian, Shiva., Campana, Pietro Elia, (2022)- **Solar energy advancements in agriculture and food production systems**. Elsevier, 496 pages. ISBN: 9780323898669
- Gorjian, Shiva., Shukla, Ashish (2020). **Photovoltaic Solar Energy Conversion: Technologies, Applications and Environmental Impacts**. Elsevier. 462 pages. ISBN: 978-0-12-819610-6.
- Esmaeili Shayan, Mostafa., Najafi, Gholamhassan., Gorjian, Shiva (2020). **Design Principles and Applications of Solar Power Systems (In Persian)**. CECR Publication, Amirkabir University of Technology Branch. ISBN: 978-964-210-321-8.

BOOK CHAPTERS

Mokhtarzadeh, H; [Gorjian, Sh](#); Molaie, Y; Soleimani, K; Gorjian, A (2023). Underground Thermal Energy Storage Systems and Their Applications. 25 pages. In Book: Thermal Energy Applications, Innovations, and Future Directions. CRC Press-Taylor & Francis Group.

[Gorjian, Sh.](#), Ebadi, H., D. Jathar, L., Savoldi, L (2022). Solar energy for sustainable food and agriculture: developments, barriers, and policies. In book: Solar Energy Advancements in Agriculture and Food Production Systems. Elsevier. Pages: 1-28.

[Gorjian, Sh.](#), Ahmed, M., Fakhraei, O., Eterafi, Sina., D. Jathar, L. (2022). Solar desalination technology to supply water for agricultural applications. In book: Solar Energy Advancements in Agriculture and Food Production Systems. Elsevier. Pages: 271-311.

[Gorjian, Sh.](#), Kamrani, F., Fakhraei, O., Samadi, H., Emami, Paria (2022). Emerging applications of solar energy in agriculture and aquaculture systems. In book: Solar Energy Advancements in Agriculture and Food Production Systems. Elsevier. Pages: 271-311.

[Gorjian, Sh.](#), Kamrani, F., Ebadi, H., Samanta, S., Savoldi, L (2022). Applications of Renewable Energy Sources in Agriculture from a Complementarity Perspective. In book: Complementarity of Variable Renewable Energy Sources. Elsevier. Pages: 425-469.

[Gorjian, Sh.](#), Ebadi, H. Introduction (2020). In book: Photovoltaic Solar Energy Conversion: Technologies, Applications and Environmental Impacts. Elsevier. Pages: 1-26.

Shakouri, M., Ebadi, H., [Gorjian, Sh](#). Solar PVT Module Technologies (2020). In book: Photovoltaic Solar Energy Conversion: Technologies, Applications and Environmental Impacts. Elsevier. Pages: 79-116.

[Gorjian, Sh.](#), Singh, R., Shukla, A., Abdur Rehman, M (2020). On-farm applications of solar PV systems. In book: Photovoltaic Solar Energy Conversion: Technologies, Applications and Environmental Impacts. Elsevier. Pages: 147-190.

[Gorjian, Sh.](#), Minaei, S., Maleh Mirchegini, L., Trommsdorff, M., Shamshiri, R. (2020). Applications of Solar PV Systems in Agricultural Automation and Robotics. In book: Photovoltaic Solar Energy Conversion: Technologies, Applications and Environmental Impacts. Elsevier. Pages: 191-235.

[Gorjian, Sh.](#), Ghobadian, B., Ebadi, H., Ketabchi, F., Khanmohammadi, S (2020). Applications of Solar PV Systems in Desalination Technologies. In book: Photovoltaic Solar Energy Conversion: Technologies, Applications and Environmental Impacts. Elsevier. Pages: 237-274.

Bake, M., Shukla, A., Liu, Sh., Agrawal, A., and [Gorjian, Sh](#). Comparative Assessment on the Use of Energy Storage in the Building Envelopes: A Review (2020). In Book: Low Carbon Energy Supply Technologies and Systems. Edition: 1st. CRC Press-Taylor & Francis Group. 326 pages.

[Gorjian, Sh.](#), Jalili Jamshidian, F., Hosseingholilu, B. Feasible Solar Applications for Brines Disposal in Desalination Plants. (2019). In Book: Solar Desalination Technology. Springer Nature - Green Energy and Technology Book Series. Pages: 25-48.

CONFERENCE PAPERS

Noorollahi1, Y; Askari Asli-Ardeh, E; Khodayari, A; Jahanbakhshi, A; [Gorjian, Sh](#). Evaluation of emissions from a diesel engine using a mixture of diesel-biodiesel-ethanol fuels and graphene nanoparticles. The third national conference on green waste management. November 2023. University of Mohaghegh Ardabili, Ardebil, Iran.

Ashrafi, J; [Gorjian, Sh](#); Ghobadian, B. Thermal analysis of solar parabolic desalination system with point focus by computational fluid dynamics method. 15th national & 1st international congress on mechanics of Biosystems Engineering and Agricultural Mechanization. September 2023. Tehran, Iran

Molaei, Y; [Gorjian, Sh](#). An Overview of Novel Technologies in Providing Solar Lighting: Developments and prospects. 15th national & 1st international congress on mechanics of Biosystems Engineering and Agricultural Mechanization. September 2023. Tehran, Iran.

Hosseinpanahi, K; Abbspour Fard, M. H.; [Gorjian, Sh](#); Golzarian, M. R. Agrivoltaic and the importance of its development in Iran. 15th national & 1st international congress on mechanics of Biosystems Engineering and Agricultural Mechanization. September 2023. Tehran, Iran.

Mokhtarzadeh, H; [Gorjian, Sh](#); Minaei, S. Examining the challenges and design approaches of energy-neutral meteorological stations. 15th national & 1st international congress on mechanics of Biosystems Engineering and Agricultural Mechanization. September 2023. Tehran, Iran.

Kolagar, B; Banakar, A; [Gorjian, Sh](#). Construction and performance evaluation of a solar system with hot air cylinder to prevent frost damage in trees. 15th national & 1st international congress on mechanics of Biosystems Engineering and Agricultural Mechanization. September 2023. Tehran, Iran.

Kolagar, B; Banakar, A; [Gorjian, Sh](#). Feasibility of solar air tunnel to prevent the cooling of trees. The first national frost event in the agricultural sector (challenges and solutions). September 2023. Isfahan, Iran.

Mokhtarzadeh, H; [Gorjian, Sh](#). Agrivoltaic technology as a solution to achieve sustainable agricultural goals in Iran. 14th National Congress of Mechanical Engineering of Biosystems and Mechanization of Iran, 6-8 Sep 2022. Kermanshah, Iran.

Pirtaj, H., [Gorjian, Sh](#). An Overview of Recycling Technologies for Crystalline Silicon Solar Panels (In Persian). 9th National Symposium on Losses of Agricultural Products. 2022. Tehran, Iran.

Kamfiroozi, Sh., Ebadi, H., Vahabi, H., Talebnejad, R., Savoldi, L., Sepaskhah, A., Ghobadian, B., [Gorjian, Sh](#). The Potential of the Rejected Brine as a Coolant for PV Temperature Reduction Purposes. 38th European Photovoltaic Solar Energy Conference and Exhibition. 6-10 September 2021, Lisbon, Portugal.

Babaebazaz, A., [Gorjian, Sh](#). Experimental evaluation of an MSF desalination plant coupled with solar parabolic dish concentrator (In Persian). 13th National Congress on Biosystems Engineering and Agricultural Mechanization, 15-17 September 2021, Tarbiat Modares University (TMU), Tehran, Iran.

Karimi, E., [Gorjian, Sh](#)., Minaei, S. A Review on the Development of Solar Lighting Systems (In Persian). 13th National Congress on Biosystems Engineering and Agricultural Mechanization, 15-17 September 2021, Tarbiat Modares University (TMU), Tehran, Iran.

Kamfiroozi, [Sh.](#), [Gorjian, Sh.](#), Ghobadian, B. Evaluation of a Rotary Cup Atomizer and Droplet Production for Use in Desalination Systems (In Persian). 13th National Congress on Biosystems Engineering and Agricultural Mechanization, 15-17 September 2021, Tarbiat Modares University (TMU), Tehran, Iran.

Kamfiroozi, Sh., [Gorjian, Sh.](#), Ghobadian, Barat. A review of saline water desalination using spray method and brine-free desalination technology (ZLD). International Conference on Desalination and Water Purification (ICDWP2021), 2021. Amirkabir University of Technology, Bandar Abbas Campus.

Eterafi, S., [Gorjian, Sh.](#), Amidpour, M. Experimental and Numerical Thermal Performance Investigation of a Solar Parabolic Dish Concentrator (PDC) with Conical Cavity Receiver (In Persian). 2020. 1st Engineering and Technology Conference, University of Tabriz, Iran.

Eterafi, S., [Gorjian, Sh.](#), Amidpour, M. Simulation and Performance Evaluation of a Parabolic Trough Solar Heating System to Supply Heat Requirements of a Greenhouse Unit (In Persian). 2020. 12th National Congress on Biosystems Engineering and Agricultural Mechanization. Khuzestan, Iran.

Banakar, Ahmad., Sharifi Saeed., [Gorjian, Sh](#). Experimental Investigation of Thermoelectric Cooling System on a Greenhouse. 4th National Conference on Climate Change and its impacts on Agriculture and the environment. Ministry of Agriculture-Jehad. 2019. Agricultural Research Education & Extension Organization. West Azerbaijan, Iran.

Jalili, F., [Gorjian, Sh.](#), Shafiee Far, M. An Overview of Solar Thermal Power Generation Systems; Components and Applications. *5th International Conference and Exhibition on Solar Energy (ICESE-2018)*, 2018. University of Tehran, Iran.

Hosseini, Ali., Banakar, A., [Gorjian, Sh.](#), Zhang, Xingxing. Experimental Performance Evaluation of a Solar Still Coupled with a Vacuum Heat Exchanger. 2016. *The 3rd International Conference and Exhibition on Solar Energy*, University of Tehran, Iran.

- Gorjian, Sh., Ghobadian, B. Solar Thermal Power Plants: Progress and Prospects in Iran. In International Conference on Applied Energy. 2015. Abu Dhabi, United Arab Emirates.
- Gorjian, Sh., Ghobadian, B. Feasibility of using solar energy for seawater desalination in Iran. In International Conference on Green Technology & Ecosystems for Global Sustainable Development (ICGTEC2014). 2014. University Malaysia Pahang, Malaysia.
- Gorjian, Sh., Tavakkoli Hashjin, T., Ghobadian, B., & Banakar, A. Modeling production of a point-focus parabolic solar still using local weather data and artificial neural networks. 2014. In International Conference and Exhibition on Solar Energy. Tehran, Iran.
- Gorjian, Sh., Ghobadian, B., Tavakkoli Hashjin, T., & Banakar, A. Experimental Investigation and Performance Analysis of a Point-focus Parabolic Solar Still. 2014. In International Conference and Exhibition on Solar Energy. Tehran, Iran.
- Gorjian, Sh., Ghobadian, B., Tavakkoli Hashjin, T., & Banakar, A. Thermal performance of a Point-focus Solar Steam Generating System. 2013. In 21st Annual International Conference on Mechanical Engineering ISME2013 (pp. 2225–2230). Tehran, Iran.
- Gorjian, Sh., Tavakkoli Hashjin, T., Ghobadian, B., & Banakar, A. Modeling Global Solar Radiation over Iran based on Meteorological Data Using ANN Technique. 2013. In 11th Iranian Conference on Intelligent Systems (ICIS2013) (Vol. 9, pp. 1–8). Tehran, Iran.
- Gorjian, Sh., Hashjin, T. T., Ghobadian, B., & Banakar, A. Study of Heat Transfer by Low-Velocity Forced Convection of Parabolic Dish Solar Cylindrical Receiver. 2012. In European Workshop on Renewable Energy Systems-EWRES (pp. 1–6). Antalya, Turkey.
- Gorjian, Sh., Hashjin, T. T., & Ghobadian, B. Estimation of mean monthly and hourly global solar radiation on surfaces tracking the sun: Case study: Tehran. 2012. In Second Iranian Conference on Renewable Energy and Distributed Generation (pp. 172–177). Tehran, Iran.
- Gorjian, Sh., Tavakkoli Hashjin, T., & Ghobadian, B. Solar Powered Greenhouses. 2011. In 10th International Conference on Sustainable Energy Technologies. Istanbul, Turkey.
- Gorjian, Sh., Tavakkoli Hashjin, T., & Ghobadian, B. Solar Thermal Technologies for Seawater Desalination: state of the art. 2011. In 10th International Conference on Sustainable Energy Technologies. Istanbul, Turkey.
- Gorjian, Sh., Tavakkoli Hashjin, T., Khoshtaghaza, M. H. Designing and Optimizing a BP Neural Network to Model a Thin-Layer Drying Process recent advances in 11th WSEAS international conference on Neural Networks. 2010. "G. ENESCU" University, Iasi, Romania.

SUPERVISED PHD DISSERTATIONS

- Design, Simulation, Fabrication, and Evaluation of a Passive Air-based Combined Heating-Cooling Photovoltaic-Thermal (PVT) System Integrated with Phase Change Material (Omid Fakhraei, 2024).
- Modeling and Construction of Drinking Water Production System Based on Peltier Effect and Multi-Effect Vertical Diffusion Distillation System Equipped with Photovoltaic-Thermal (Sajad Saadi, 2025).
- Design, Fabrication and Evaluation of a Solar Variable Pressure Humidification Dehumidification Desalination System and its Thermodynamic and Economic Analysis (Kazem Kermani, 2025).

SUPERVISED MASTER THESIS

- | | | |
|--|-------------------------|------|
| • Design and Simulation of an Agrivoltaic Array based on a Solar Concentrator Photovoltaic (CPV) Module and Flat Waveguide | Fatemeh Nasri Nasrabadi | 2024 |
| • Modeling, Simulation and Performance Evaluation of a Marine Aquavoltaic System | Amin Momeni | 2024 |
| • Design, Fabrication and Evaluation of a Natural Daylight Supply and Conduction System | Yaghoub Molaei | 2024 |
| • Design, Fabrication and Evaluation of a Smart Portable Solar-powered Weather Station | Hamed Mokhtarzadeh | 2024 |

• Distillation System based on a Point-focus Parabolic Solar Concentrator to Produce Herbal Extracts	Javad Ashrafi	2024
• Design, Fabrication and Assessment of an Agrivoltaic System based on a Solar Concentrating Photovoltaic (CPV) Module Using Point-focus Fresnel Lens for Co-generation of Electricity and Agricultural Product	Amirhossein Aziznejad	2024
• Energy, Exergy and Exergoeconomic Analysis of a Multi-generation System for Production of Cooling, Heating, Freshwater and Hydrogen based on Solar Tower	Atabak Shakouri	2023
• Design, construction and evaluation of a solar cooker equipped with Fresnel lens	Masoud Adavi	2023
• Design and Fabrication of an Energy Recovery System for a Membrane Capacitive Deionization Module and Investing the Capability of Supplying Power Using a Photovoltaic System Cells	Hamidreza Bahrami	2022
• Design and Development of a Hybrid Solar Lighting System based on Optical Fibers and Photovoltaic Cells	Ehsan Karimi	2021
• Design, Construction, and Evaluation of a Desalination System Equipped with a Wheel Atomizer with the Aim of Integration to a Solar Power System	Shahdad Kamfirouzi	2021
• Design, Development and Evaluation of a Stand-alone CPVT-Hydrogen System for Power, Heat and Hydrogen Production	Meysam Mehrvalipour	2021
• Design and Development of a Solar PV-powered Cooker with Induction Heating for Use in Rural Areas	Armin Altouni	2020
• Performance Evaluation of an MSF Desalination System Integrated with a Parabolic Dish Concentrator	Ali Babaei Bazaz	2020
• Design, Development, and Evaluation of a Parabolic Dish Concentrator and Simulation of a Thermal Concentrating Solar Power Plant Based on	Sina Eterafi	2020

NATIONAL AND INTERNATIONAL PROJECTS

- A Solar-Biomass-powered Plant for Co-generation of Electricity and Freshwater to Supply Water for Cultivation Environments in Coastal Areas of Oman (**Started in 2024**)
- Development of a Solar Powered Membrane Capacitive Deionization System (Under Financial Support of Iran National Science Foundation) (**Completed in 2023**)
- Development of a Stand-Alone Spray-Assisted Solar Thermal Desalination System (Joint Project Between Iran and India. (**Completed in 2020**).
- Design and Development of a Hybrid MED-RO Desalination System Using a Solar CHP System to Produce Drinking Water. Under Financial Support of the “Semnan Regional Water Company”. (**Completed in 2019**).