

Name: Mohamed Ragab Elmarghany

Current Title: Director of Mansoura University Nanotechnology Center, Mansoura University

Assistant Professor, Mechanical power Engineering Department, Faculty of Engineering, Mansoura University.

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FIELDS OF SPECIALIZATION

- Membrane Technology
- Water Desalination
- Renewable energy

DEGREES

- **PhD, 2020**, Egypt Japan University of Science and Technology (E-JUST), Egypt, “Heat and Mass Transfer Analysis for a New Membrane Distillation Unit Powered by a Solar Collector”, GPA =4.0.
- **MSc, 2016**, Faculty of engineering, Mansoura University, Egypt, “Modeling of Conjugate Heat Transfer”.
- **BSc, 2010**, Faculty of engineering, Mansoura University, Excellent with honor.

ACADEMIC AND INDUSTRIAL POSITIONS

- Director of Mansoura University Nanotechnology Center, Mansoura University, August 2020 to present.
- Assistant professor, Mechanical Power Engineering Department, Faculty of Engineering, Mansoura University, Egypt (March 2020 – present).
- Assistant lecturer, Mechanical Power Engineering Department, Faculty of Engineering, Mansoura University, Egypt (June 2016 - February 2017).
- Demonstrator, Mechanical Power Engineering Department, Faculty of Engineering, Mansoura University, Egypt (Feb. 2011 - June 2016).

RESEARCH PROJECTS

- STDF Fund, Novel magnetic membranes for gas separation (1.8 million LE, 2021)
- TICO Fund, Fabrication of Stand-alone Water Desalination Unit (Egypt-Japan University of Science and Technology Research Grant, 2019)
- ASRT Graduation Project Fund, Water Desalination using Membrane Distillation System Utilizing Solar Energy (2020-2021, 75000 LE)

- ASRT Graduation Project Fund, Humidification-Dehumidification- Reverse Osmosis Hybrid Desalination System (2021-2022, 75000 LE)
- ASRT Graduation Project Fund, Maximizing the Benefit of Solar Power Depending on Concentrated photovoltaic (CPV) Technology (2021-2022, 75000 LE)

AWARDS AND HONORS

- 3rd position and the bronze medal, 5th Cairo International Exhibition for innovation (2018)
- Egypt-Japan University of Science and Technology Board of Trustees Award (2019)

PATENTS, PUBLICATIONS

Patent

- “Novel multilayer polymeric membrane with carbon nanotubes and its applications in membrane distillation” No. 2018/1640 (EGYPT) Date 15/10/2018 (not Accepted yet)

Journal Papers

- [1] N. Nady, N. Salem, **M. R. Elmarghany**, M. S. Salem, and S. H. Kandil, “Novel Magnetic Mixed Cellulose Acetate Matrix Membranes with Oxygen-Enrichment Potential,” *Membranes (Basel)*, vol. 12, no. 12, p. 1259, 2022.
- [2] K. Abdul Latif, **E. Marghany**, **M. Ragab**, M. H. Mansour, L. H. Rabie, and M. S. El Kady, “Non-Newtonian Drag Reducing Flow Characteristics in Porous Media,” *J. Eng. Res.*, vol. 6, no. 5, pp. 1–6, 2022.
- [3] A. O. Ali, A. M. Hamed, M. M. Abdelsalam, M. N. Sabry, and **M. R. Elmarghany**, “Energy management of photovoltaic-battery system connected with the grid,” *J. Energy Storage*, vol. 55, p. 105865, 2022.
- [4] Amin Mojarad Garehbagh, Saeid Rajabzadeh, Mahmoud A Shouman, **Mohamed R Elmarghany**, Mohamed S Salem, Nasrul Arahman, Toraj Mohammadi, Hideto Matsuyama, “Simulation Assessment of Inlet Parameters and Membrane-Surface-Structure Effects on CO2 Absorption Flux in Membrane Contactors,” *Sustainability*, vol. 14, no. 21. 2022, doi: 10.3390/su142114527.
- [5] Essam M Abo-Zahhad, Chaouki Ghenai, Ali Radwan, Osama Abdelrehim, Mohamed S Salem, **Mohamed R Elmarghany**, Asmaa Khater, Mahmoud A Shouman, “A Micro-Metal Inserts Based Microchannel Heat Sink for Thermal Management of Densely Packed Semiconductor Systems,” *Sustainability*, vol. 14, no. 21. 2022, doi: 10.3390/su142114182.
- [6] S. Zahran, A. A. Sultan, M. Bekheit, and **M. R. Elmarghany**, “Heat transfer augmentation through rectangular cross section duct with one corrugated surface: An experimental and numerical study,” *Case Stud. Therm. Eng.*, vol. 36, p. 102252, 2022.
- [7] **M. R. Elmarghany**, A. Radwan, M. A. Shouman, A. A. Khater, M. S. Salem, and O. Abdelrehim, “Year-long energy analysis of building brick filled with phase change materials,” *J. Energy Storage*, vol. 50, p. 104605, 2022.

- [8] A. O. Ali, **M. R. Elmarghany**, M. M. Abdelsalam, M. N. Sabry, and A. M. Hamed, "Closed-loop home energy management system with renewable energy sources in a smart grid: A comprehensive review," *J. Energy Storage*, vol. 50, p. 104609, 2022.
- [9] Essam M Abo-Zahhad, Saim Memon, Ali Radwan, **Mohamed R Elmarghany**, Asmaa Khater, Chaouki Ghenai, O Abdelrehim, "A new fusion-edge sealed vacuum for concentrated photovoltaic/thermal solar collector in comparison to a conventional system," *Case Stud. Therm. Eng.*, vol. 34, p. 102003, 2022, doi: <https://doi.org/10.1016/j.csite.2022.102003>.
- [10] Z. Zeitoun, A. H. El-Shazly, S. Nosier, **M. R. Elmarghany**, M. S. Salem, and M. M. Taha, "Electrospinning of polyvinylidene fluoride membranes: Effect of membrane composition and fabrication conditions," *Egypt. J. Chem.*, vol. 65, no. 2, pp. 41–50, 2022.
- [11] M. S. Salem, M. R. Elmarghany, N. Salem, and N. Nady, "Synthesis of Urchin-Shaped Gold Nanoparticles Utilizing Green Reducing and Capping Agents at Different Preparation Conditions: An In Vitro Study," *Sustainability*, vol. 14, no. 24, p. 16838, 2022.
- [12] Ali Radwan, Takao Katsura, Saim Memon, Essam M Abo-Zahhad, O Abdelrehim, Ahmed A Serageldin, **Mohamed R Elmarghany**, Asmaa Khater, Katsunori Nagano, "Development of a new vacuum-based photovoltaic/thermal collector, thermal and exergy analyses," *Sustain. Energy Fuels*, 2020, doi: 10.1039/d0se01102a.
- [13] Saim Memon, Yueping Fang, Essam Mohamed Abo-Zahhad, O Abdelrehim, **Mohamed R Elmarghany**, Abdul Rashid Memon, Shanwen Zhang, Amos Darko, "Factors influencing the performance parameters of vacuum glazed smart windows to net zero energy buildings," *Int. J. Sol. Therm. Vac. Eng.*, vol. 2, no. 1, pp. 1–18, 2020.
- [14] Z. Zeitoun, A. H. El-Shazly, S. Nosier, **M. R. Elmarghany**, M. S. Salem, and M. M. Taha, "Performance evaluation and kinetic analysis of photocatalytic membrane reactor in wastewater treatment," *Membranes (Basel)*, vol. 10, no. 10, p. 276, 2020.
- [15] **M. R. Elmarghany**, M. H. Mansour, A. A. Sultan, and M. N. Sabry, "Modeling of Conjugate Heat Transfer," *MEJ. Mansoura Eng. J.*, vol. 41, no. 1, pp. 16–23, 2020.
- [16] Maryam Bagheri, Saeid Rajabzadeh, **Mohamed R Elmarghany**, Rozita M Moattari, Omid Bakhtiari, Asuka Inada, Hideto Matsuyama, Toraj Mohammadi, "Preparation of a positively charged NF membrane by evaporation deposition and the reaction of PEI on the surface of the C-PES/PES blend UF membrane," *Prog. Org. Coatings*, vol. 141, p. 105570, 2020.
- [17] **Mohamed R Elmarghany**, Ahmed H. El-Shazly, Saeid Rajabzadeh, Mohamed S. Salem, Mahmoud A. Shouman, Mohamed Nabil Sabry, Hideto Matsuyama, Norhan Nady, "Triple-layer nanocomposite membrane prepared by electrospinning based on modified PES with carbon nanotubes for membrane distillation applications," *Membranes (Basel)*, vol. 10, no. 1, Jan. 2020, doi: 10.3390/membranes10010015.
- [18] M. A. Shouman, A. H. El-Shazly, M. F. Elkady, M. S. Salem, **M. R. Elmarghany**, and M. N. Sabry, "Shape optimization of an innovative hepatic sinusoids-based micromixer," *Chem. Eng. Process. Intensif.*, vol. 146, p. 107684, 2019.
- [19] M. S. Salem, A. H. El-Shazly, N. Nady, **M. R. Elmarghany**, and M. N. Sabry, "PES/PVDF blend membrane and its composite with graphene nanoplates: Preparation, characterization, and water desalination via membrane distillation," *Desalin. Water Treat.*, vol. 166, pp. 9–23, Oct. 2019, doi: 10.5004/dwt.2019.24611.

[20] **M. R. Elmarghany**, A. H. El-Shazly, M. S. Salem, M. N. Sabry, and N. Nady, “Thermal analysis evaluation of direct contact membrane distillation system,” *Case Stud. Therm. Eng.*, vol. 13, p. 100377, 2019, doi: <https://doi.org/10.1016/j.csite.2018.100377>.

[21] M. S. Salem, A. H. El-Shazly, N. Nady, **M. R. Elmarghany**, M. A. Shouman, and M. N. Sabry, “3-D numerical investigation on commercial PTFE membranes for membrane distillation: Effect of inlet conditions on heat and mass transfer,” *Case Stud. Therm. Eng.*, vol. 13, 2019, doi: [10.1016/j.csite.2019.100396](https://doi.org/10.1016/j.csite.2019.100396).

[22] M. S. A. Salem, A. H. El-Shazly, **M. R. El-Marghany**, M. N. Sabry, and N. Nady, “Effect of adding functionalized graphene on the performance of PVDF membrane in direct contact membrane distillation,” in *Key Engineering Materials*, 2019, vol. 801, pp. 337–342.

[23] A. Y. M. Ali, A. H. El-Shazly, M. F. El-Kady, H. I. Elqady, and **M. R. El-Marghany**, “Effect of using MgO-oil nanofluid on the performance of a counter-flow double pipe heat exchanger,” in *Key Engineering Materials*, 2019, vol. 801, pp. 193–198.

[24] **M. R. El-Marghany**, A. H. El-Shazly, M. S. A. Salem, M. N. Sabry, and N. Nady, “Novel membrane suitable for membrane distillation: Effect of mixed nanofillers on the membrane performance,” in *Key Engineering Materials*, 2019, vol. 801, pp. 325–330.

Conference

Publications

[1] Ali Radwan, Essam M Abo-Zahhad, O Abdelrehim, AH El-Shazly, Shinichi Ookawara, MM Awad, MF El-Kady, **Mohamed R Elmarghany**, Mohamed S Salem, Mahmoud A Shouman, “Developing an Optimum Design of the Double Layer Microchannel Heat Sink for High-Speed CPUs,” in *International Conference on Nanochannels, Microchannels, and Minichannels*, 2020, vol. 83693, p. V001T04A001.

[2] Essam M Abo-Zahhad, AH El-Shazly, Shinichi Ookawara, MF El-Kady, Abdallah YM Ali, Hesham I Elqady, **Mohamed R Elmarghany**, Mohamed S Salem, Mahmoud A Shouman, Ali Radwan, “Four Compartments Stepwise Varied Width Microchannels Cooling Approach for Densely-Packed Module of Concentration Photovoltaics.” *Jul. 13, 2020*, doi: [10.1115/ICNMM2020-1006](https://doi.org/10.1115/ICNMM2020-1006).

[3] Mahmoud A Shouman, Ahmed H El-Shazly, Mohamed S Salem, **Mohamed R Elmarghany**, Essam M Abo-Zahhad, Marwa F Elkady, Mohamed Nabil Sabry, Ali Radwan, “A Hepatic Sinusoids-Based Microreactor for Photocatalytic Degradation of Methylene Blue by Titanium Dioxide,” in *International Conference on Nanochannels, Microchannels, and Minichannels*, 2020, vol. 83693, p. V001T02A001.

[4] **Mohamed R Elmarghany**, AH El-Shazly, Ali Radwan, Essam M Abo-Zahhad, Norhan Nady, Mohamed N Sabry, Mahmoud A Shouman, Mohamed S Salem, “Effect of Cell Design on the Thermal Performance of Direct Contact Membrane Distillation System Utilizing a Nanocomposite Membrane,” in *Heat Transfer Summer Conference*, 2020, vol. 83709, p. V001T11A006.