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**Current Title:** Assistant Professor in Mechanical Power Engineering Dept.,  
Faculty of Engineering, Mansoura University, Egypt

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**FIELDS OF SPECIALIZATION**

- Microfluidics engineering
- Biomedical Applications
- Water Treatment
- New and Renewable energy
- Biofuels
- Combustion

**DEGREES**

- **Ph.D. in Engineering (Chemical and Petrochemicals Engineering)**, Chemical and Petrochemicals Engineering Department, Egypt-Japan University of Science and Technology (EJUST), Egypt, Sept. 2020, Thesis Topic: Design and Modeling of a New Microreactor and Its Application in Mass Transfer Operation, “GPA= 4.0”.
- **M.Sc. in Engineering (Mechanical Power Engineering)**, Mechanical Power Engineering Department, Faculty of Engineering, Mansoura University, Egypt, 2016, Thesis Topic: Modeling of Mixing Process in Microreactors Used for Biofuel Production
- **B.Sc. (Excellent with Honor)**, Mechanical Power Engineering Department, Faculty of Engineering, Mansoura University, Egypt, 2011, Graduation Project: Central Air-Conditioning of Specialized Medical Hospital

**ACADEMIC AND INDUSTRIAL POSITIONS**

- 1- Feb 2012 - Nov 2016, Teaching Assistant, Mechanical Power Engineering Department, Faculty of Engineering, Mansoura University, Egypt
- 2- Nov 2016 – Oct 2020, Assistant Lecturer, Mechanical Power Engineering Department, Faculty of Engineering, Mansoura University, Egypt
- 3- Nov 2020 – date, Assistant Professor, Mechanical Power Engineering Department, Faculty of Engineering, Mansoura University, Egypt
- 4- July 2022 – date, Director of crisis and disaster management unit in the faculty of

engineering, Mansoura university

## **PATENTS, PUBLICATIONS**

### **Journal Papers**

- [1] **M.A. Shouman**, A.H. El-Shazly, M.F. Elkady, M.N. Sabry, R. Kamogawa, K. Nonaka, M. Sasaki, A. Kawahara, A hepatic sinusoids-based microtube reactor for (Z)-5-(4-hydroxybenzylidene) thiazolidine-2, 4-dione intermediate drug synthesis, *Chemical Engineering Science* 247 (2022) 116940.
- [2] A.M. Garehbagh, S. Rajabzadeh, **M.A. Shouman**, M.R. Elmarghany, M.S. Salem, N. Arahman, T. Mohammadi, H. Matsuyama, Simulation Assessment of Inlet Parameters and Membrane-Surface-Structure Effects on CO<sub>2</sub> Absorption Flux in Membrane Contactors, *Sustainability* 14 (2022) 14527.
- [3] M.R. Elmarghany, A. Radwan, **M.A. Shouman**, A.A. Khater, M.S. Salem, O. Abdelrehim, Year-long energy analysis of building brick filled with phase change materials, *Journal of Energy Storage* 50 (2022) 104605.
- [4] M.M. Amer, **M.A. Shouman**, K.F. Megalaa, M.S. Salem, Flow characteristics in non-conventional combustion chamber configurations, *Physics of Fluids* (2022).
- [5] E.M. Abo-Zahhad, C. Ghenai, A. Radwan, O. Abdelrehim, M.S. Salem, M.R. Elmarghany, A. Khater, **M.A. Shouman**, A Micro-Metal Inserts Based Microchannel Heat Sink for Thermal Management of Densely Packed Semiconductor Systems, *Sustainability* 14 (2022) 14182.
- [6] M. Amer, **M.A. Shouman**, M. Sameh, K. Megalaa, Comparison of The Flow Characteristics between Circular and Wedged Configurations in Internal Combustion Engine Chambers, *JPU D* 14 (2021) 3
- [7] M.R. Elmarghany, A. H. El-Shazly, S. Rajabzadeh, M. S. Salem, M. A. Shouman, M. Nabil Sabry, H. Matsuyama, N. Nady, Triple-layer nanocomposite membrane prepared by electrospinning based on modified PES with carbon nanotubes for membrane distillation applications, *Membranes* 10 (2020) 15.
- [8] S.H. El-Emam, M.N. Sabry, M.H. Mansour, M.A.E.-g. Shouman, Modeling of Mixing Process in Microreactors Used for Biofuel Production, *MEJ. Mansoura Engineering Journal* 41 (2020) 7-15.
- [9] M.A. Shouman, A.H. El-Shazly, M.F. Elkady, M.S. Salem, M.R. Elmarghany, M.N. Sabry, Shape optimization of an innovative hepatic sinusoids-based micromixer, *Chemical Engineering and Processing-Process Intensification* 146 (2019) 107684.
- [10] M.S. Salem, A.H. El-shazly, N. Nady, M.R. Elmarghany, M.A. Shouman, M.N. Sabry, 3-D numerical investigation on commercial PTFE membranes for membrane distillation: Effect of inlet conditions on heat and mass transfer, *Case Studies in Thermal Engineering* 13 (2019) 100396.
- [11] M.N. Sabry, S.H. El-Emam, M.H. Mansour, M.A. Shouman, Development of an efficient uniflow comb micromixer for biodiesel production at low Reynolds number, *Chemical Engineering and Processing-Process Intensification* 128 (2018) 162-172.

### **Conference Publications**

- [1] **M.A. Shouman**, A.H. El-Shazly, M.S. Salem, M.R. Elmarghany, E.M. Abo-Zahhad, M.F. Elkady, M.N. Sabry, A. Radwan, A Hepatic Sinusoids-Based Microreactor for Photocatalytic Degradation of Methylene Blue by Titanium Dioxide, *International Conference on Nanochannels*,

Microchannels, and Minichannels, American Society of Mechanical Engineers, 2020, pp. V001T002A001.

[2] **M.A. Shouman**, A.H. El-shazly, M.F. Elkady, M.N. Sabry, Numerical Investigation of the Mixing Performance of a Novel Hepatic Sinusoids-Based Micromixer, *International Journal of Mechanical Engineering & Robotics Research* 9 (2020).

[3] **M.A. Shouman**, A.H. El Shazly, M.F. El-Kady, M.N. Sabry, Characterization of the Mixing Performance of an Innovative Hepatic Sinusoids-Based Microreactor Using Villermaux-Dushman Protocol, *Materials Science Forum*, Trans Tech Publications Ltd, 2020, pp. 28-32.

[4] A. Radwan, E.M. Abo-Zahhad, O. Abdelrehim, A. El-Shazly, S. Ookawara, M. Awad, M. El-Kady, M.R. Elmarghany, M.S. Salem, **M.A. Shouman**, Developing an Optimum Design of the Double Layer Microchannel Heat Sink for High Speed CPUs, *International Conference on Nanochannels, Microchannels, and Minichannels*, American Society of Mechanical Engineers, 2020, pp. V001T004A001.

[5] O.S. Okwundu, A.H. El-Shazly, M.F. El-Kady, **M.A. Shouman**, Transesterification catalytic performance of mechanically alloyed eggshell ash, magnesium and aluminum oxides for sustainable biodiesel production, *Key Engineering Materials*, Trans Tech Publications Ltd, 2020, pp. 139-143.

[6] M.R. Elmarghany, A. El-Shazly, A. Radwan, E.M. Abo-Zahhad, N. Nady, M.N. Sabry, **M.A. Shouman**, M.S. Salem, Effect of Cell Design on the Thermal Performance of Direct Contact Membrane Distillation System Utilizing a Nanocomposite Membrane, *Heat Transfer Summer Conference*, American Society of Mechanical Engineers, 2020, pp. V001T011A006.

[7] E.M. Abo-Zahhad, A. El-Shazly, S. Ookawara, M. El-Kady, A.Y. Ali, H.I. Elqady, M.R. Elmarghany, M.S. Salem, **M.A. Shouman**, A. Radwan, Four compartments stepwise varied width microchannels cooling approach for densely-packed module of concentration photovoltaics, *International Conference on Nanochannels, Microchannels, and Minichannels*, American Society of Mechanical Engineers, 2020, pp. V001T004A002.