Name: Ahmed Mohamed Taher Alaa Eldein Hussin

Current Title: Associate Professor of Energy Systems, Mechanical Power Engineering Department, Faculty of Engineering - Ain Shams University.



**Phone number:** +2 010 9900 9075

Email: ahmed\_eldeinhussin@eng.asu.edu.eg

### FIELDS OF SPECIALIZATION:

- Mechanical Engineering
- Thermo-fluids
- Combustion
- Waste to Energy
- Refrigeration and Air Conditioning

### **DEGREES:**

Associate Professor Degree: The Supreme Egyptian council of universities, 2021.

PhD Combustion in Engines, University of Leeds, the UK, 2013.

MSc Mechanical Power Engineering, Faculty of Engineering, Ain Shams University, Egypt, 2006 BSc Mechanical Power Engineering, Faculty of Engineering, Ain Shams University, Egypt, 2001

# ACADEMIC AND INDUSTRIAL POSITIONS:

1- From Jan.2021 to Present:

Associate Professor, Mechanical Power Engineering, Ain Shams University, Cairo, Egypt.

2- From Mar. 2013 to Jan. 2021:

Assistant Professor, Mechanical Power Engineering, Ain Shams University, Cairo, Egypt. Responsibilities:

- Teaching undergraduate and postgraduate courses
- Participation in several research projects and Capacity Building Projects.
- 3- From Oct. 2008 to Sep. 2012:

Research assistant, School of Mechanical Engineering, University of Leeds, the UK. Responsibilities:

- Participation in several research projects to investigate experimentally the combustion characterisation (speed of laminar and turbulent flames, and auto-ignition) of synthetic fuels and biofuels for industrial projects funded by Siemens and Shell.
- 4- From Jan. 2002 to May. 2008:

Teaching assistant, Mechanical Power Engineering, Ain Shams University, Cairo, Egypt. Responsibilities:

• Teaching undergraduate courses

### **RESEARCH PROJECTS**

# March 2019 – Feb. 2021:

Co-Principal Investigator in a joint research project "Renewable Energy-based Fresh Water Provisioning Technology in Rural Areas of Egypt", between Ain Shams University and University of Northumbria, the UK, and funded by the British Council and Science & Technology Development Fund, (STDF), Egypt-UK Newton-Musharafa:



# <u>Aug. 2018 – Jul. 2020:</u>

Researcher in a joint research project "Development of a biochar system for optimal conversion of Egyptian agricultural waste to Energy", between Faculty of Engineering, Ain Shams University and Massachusetts Institute of Technology (MIT), and funded by Academy of Scientific Research and Technology, (ASRT).

# • Oct. 2015 – Sep. 2017:

Researcher in a joint research project, "Advanced high-efficient power-generation", funded by Europe-Africa (ERAfrica) and Science and Technology Development Fund.

# • Sep. 2014 – Aug. 2016:

Researcher in a research project "Power Generation from the Sun", funded by Science and Technology Development Fund, (STDF). Two papers were published.

# • Sep. 2016 – Dec. 2017:

A team member in a funded capacity building project by TEMPUS, "Joint master of Mediterranean initiatives on renewable and sustainable energy", to develop postgraduate curriculum.

# • Sep. 2013 – Oct. 2015:

A team member in a funded capacity building project by TEMPUS, "Clean Energy and Research in Environmental Studies", (CERES), to develop postgraduate curriculum.

# Consultant:

- 1- From Mar. 2016 to Jan.2017:
  - Waste Heat Recovery Consultant for Egypt Kuwait Holding (KAHRABA) Responsibilities:
    - Waste Heat Recovery was designed to add extra 7% of electric power output.
- 2- From Jan. 2015 to Mar. 2018 for Oceania Engineering System

Waste-to-Energy Consultant

Responsibilities:

- Selecting a fluidized bed gasifier feed by chicken manure to produce syngas.
- Selecting a genset fuelled by syngas to supply the farm with sufficient electricity.
- Design a starting system for the genset running on the syngas.
- Design a heat exchanger which keeps a chicken farm warm during winter by recovering the waste heat from the exhaust gas of the genset.
- 3- From Oct. 2015 to July 2016 for Delta Life Insurance Company (Egypt) HVAC Consultant

Responsibilities:

- Cooling load calculations
- Selecting HVAC system components
- supervising the work carried out by the HVAC contactor during the phases of supply, installation, testing and commissioning the HVAC system.
- Coordinate with the consultants of architecture, decorative, electrical consultant, and civil.

# PUBLICATIONS (Last 10 years):

# Journal papers:

- **1.** Hamed, A.M., Kamal, M.M. and **Hussin, A.E., 2023.** "Characteristics of hollow bluff body-stabilized natural gas-air premixed flames with heat recirculation". Fuel, 333, p.126430.
- **2.** Magdy, M., Kamal, M.M., Hamed, A.M., **Eldein Hussin, A**. and Aboelsoud, W., **2022.** "A comparative study of the pulsating flames with different air inlet port geometrical shape". Sādhanā, 47(1), pp.1-15.
- **3.** Magdy, M., Kamal, M., Hamed, **A.M., Hussin**, A.E. and Aboelsoud, W., **2021**. "Numerical and Experimental Study of Inverse Diffusion LPG-Air Flames Pulsation". European Journal of Computational Mechanics, pp.169-196.
- **4.** Magdy, M., Kamal, M.M., Hamed, **A.M., Hussin**, A.E. and Torky, W.A., **2020**. "Study the Effect of Air Pulsation on the Flame Characteristics". European Journal of Computational Mechanics, pp.279-302.

- 5. Hamed, A.M., Moustafa, A.M., Kamal, M.M. and Hussin, A. E., 2020. "Single and Double Flow Pulsations of Normal and Inverse Partially Premixed Methane-Air Flames". Combustion Science and Technology, pp.1-31.
- Sayed, M.A., Hussin, A. E., Aboelsoud, W. and Mahmoud, N.A., 2020. "Performance evaluation of Wire Mesh Heat Exchangers". Applied Thermal Engineering, p.114891. Volume 169, ISSN 1359-4311.
- **7. Hussin, A. E.,** Hamed, A.M., Kamal, M.M. and Elbaz, A.R., **2019**, "Development of an Industrial Burner Accommodating Methane-Air Triple Flames". Combustion Science and Technology, pp.1-17.
- 8. T.M. Gadelkareem, A.M.T.A. Eldein Hussin, G.M. Hennes, A.A. El-Ehwany, 2019, "Stirling cycle for hot and cold drinking water dispenser", International Journal of Refrigeration, ISSN 0140-7007, https://doi.org/10.1016/j.ijrefrig.2018.11.033.
- Ibrahim Gad-el-Hak, Ahmed Eldein Hussin, Ashraf Moustafa Hamed, Nabil Abdel Aziz Mahmoud, 2018, "Numerical Investigation of the Effects of Number of Rotor and Nozzle Blades on the Performance of an ORC Turbo-Expander", American Journal of Mechanical Engineering and Automation. Vol. 5, No. 3, pp. 49-62
- **10.** Gad-el-Hak, I., **Hussin, A. E.,**Hamed, A. M., Mahmoud, N. A.,**2017**, "3D Numerical Modelling of Zeotropic Mixtures and Pure Working Fluids in an ORC Turbo-Expander", International Journal of Turbomachinery, Propulsion and Power, 2(1),2
- **11.** A. M. Hamed, **A. E. Hussin**, M. M. Kamal, A. R. Elbaz, **2017**, "Combustion of a hydrogen jet normal to multiple pairs of opposing methane–air mixtures", Proceedings of the Institution of Mechanical Engineers, Part A: 0957650916685944.
- **12.** Bardin M. E.; **El-Dein Hussin**; Gushchin P. A.; Vinokurov VA; Burluka AA, **2014**, "Technical aspects of ethyl tert-butyl ether (ETBE) for large-scale use as gasoline improver". Energy Technology, vol. 2, pp.194-204.
- **13.** Burluka A. A., **El-Dein Hussin**, Ling Z. Y., Sheppard C. G. W., **2012** "Effects of large-scale turbulence on cyclic variability in spark-ignition engine", Experimental Thermal and Fluid Science, Volume 43, pp. 13-22.

# **Conference publications:**

- 1- Eskander, W.W., Hussin, A.T. and Hennes, G.M., 2020, July. "Performance of a Diesel Engine Generator Fuelled with Blends of Diesel Fuel and Waste Used Oil". In 2020 12<sup>th</sup> International Conference on Electrical Engineering (ICEENG) (pp. 97-101). IEEE.
- 2- A Shouman, A. El-Dien Hussin, A. Hamed, M. Serag El-Din, N. Mahmoud, A. El-Baz, 2017, "Performance evaluation of a novel dual vane rotary compressor", 10<sup>th</sup>International Conference on Compressors and their Systems, IOP Conference Series: Materials Science and Engineering, volume 232, 1, pages 012060, doi:10.1088/1757-899X/232/1/012060

# **References:**

# • Prof. Nabil Abdel Aziz Mahmoud,

Mechanical Power Engineering Department, Ain Shams University, 1 El-Sarayat St. Abbasia, Cairo, Egypt **Email:** nabil\_mahmoud@eng.asu.edu.eg **Tel:** +201001890980

# • Prof. Ahmed Reda El-Baz,

Mechanical Engineering Department, British University in Egypt, Al Shorouk City, Egypt **Email:** ahmed.elbaz@bue.edu.eg **Tel:** +2 010 0154 3391

### • Prof. Alexey Burluka,

Mechanical and Construction Engineering Department, Northumbria University, Newcastle-upon-Tyne, NE7 7XA, the UK **Email:** alexey.burluka@northumbria.ac.uk **Tel:** +44(0)1912273754