Name: Ashraf Mostafa Hamed Mohamed Amer

 Current Title: Associate Professor – Department of Mechanical Power Engineering – Ain Shams University – Faculty of Engineering
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FIELDS OF SPECIALIZATION

- Fluid Dynamics
- Wind Energy and Wind Turbines
- Turbomachinery (centrifugal pumps, axial-flow pumps, compressors, steam turbines and gas turbines)
- CFD Numerical Modeling of Turbomachinery
- CFD Numerical Modeling of Combustion
- CFD Numerical Modeling of Turbulent flow

DEGREES

- **Ph.D.,** Degree (Mechanical Power Engineering), Graduate School of Energy, Environmental and Process Engineering Egypt-Japan University of Science and Technology Egypt, Graduation Year: 2013, Thesis topic: Development of a Small-Scale Wind Concentrator Turbine.
- **M.S.**, Degree (Mechanical Power Engineering), Department of Mechanical Power Engineering Faculty of Engineering Ain Shams University, Graduation Year: 2007, Thesis topic: Study of Some Design Parameters Affecting the Performance of Axial-Flow Pumps.
- **B.S.E.E.,** Degree (Mechanical Power Engineering), Department of Mechanical Power Engineering Faculty of Engineering Ain Shams University, Graduation Yea: 2003.

Start Date	End Date	Position Title	Dept, Institution - Country
October	Until	Associate Professor	Mechanical Power Engineering Department – Faculty of
26 th , 2020	present		Engineering – Ain Shams University - Egypt
November	October	Assistant Professor	Mechanical Power Engineering Department – Faculty of
27 th , 2013	26 th , 2020		Engineering – Ain Shams University - Egypt
June 2 nd ,	June 28 th ,	Doctoral Academic	Graduate School of Engineering, Department of Applied
2012	2013	Visitor	Mechanics, Aalto University, Finland
February	June 2 nd ,	Ph.D. Student	Graduate School of Energy, Environmental and Process
21 st , 2010	2012		Engineering – Egypt Japan University of Science and
			Technology - Egypt
December	February	Assistant Lecturer	Mechanical Power Engineering Department – Faculty of
8 th , 2007	21, 2010		Engineering – Ain Shams University - Egypt

ACADEMIC AND INDUSTRIAL POSITIONS

November	August	Demonstrator	Mechanical Power Engineering Department – Faculty of
17 th , 2003	8 th , 2007		Engineering – Ain Shams University - Egypt

RESEARCH PROJECTS

No.	Research Title	Duration	Grants (LE)	Abstract
1	GE-SEED: German Egyptian Mobility Program for Scientific Exchange and Excellence Development	2 Years	Science and Technology Development Fund (STDF) and German Academic Exchange Service (DAAD)	The main objective of the project is to improve the aerodynamic performance of vertical axis wind turbine (VAWT) to increase the percentage of captured wind power. The project work shall be divided into two phases: numerical simulations to obtain initial performance characteristics of new ideas in the aerodynamic design and experimental testing of the optimized new shapes of turbine elements to verify the design. The major part numerical simulations shall be performed at the Egyptian partners institution while the experimental part shall be performed at the institution of the German partner.
3	Development of an advanced high- efficient low-cost power-generation with minimum carbon emission from hybrid-fuel supplies	3 Years	ERAfrica - STDF	The technical objective of the project is to pave the road for various sources of renewable energy (RE) and alternative fuel to be utilized in both bulk and distributed micro-generation (DMG) forms. The proposed system will consist of two major subsystems, which are: an advanced gas turbine power cycle to convert thermal energy into a mechanical energy and a high- speed generator that would be driven by the advanced turbine for electric power generation.
4	Design and Manufacturing of a High Efficiency, Diffuser Augmented Small Wind Turbine for Off-Grid Applications	1.5 Years	Misr El Khir	The proposed project focuses on the design and local manufacturing of a small Diffuser Augmented Wind Turbine (DAWT) for remote areas in Egypt. Recent studies indicated that adding a diffuser to a conventional wind turbine will result in a considerable increase in power at relatively small wind speeds by a factor of four times higher. This research project seeks to strengthen collaboration between industry and academia to develop cost effective solutions to the energy crisis in Egypt targeting rural and remote areas. Accordingly, the research team will comprise academic as well as industrial organizations.
5	Renewable Energy-Based Fresh Water Provisioning Technology in Rural Areas of Egypt (ReFreshTech)	2 Years	Science and Technology Development Fund (STDF)	In order to supply water for remote areas where water is scarce. A cost-effective solution was needed and here this project plays its role. A non-conventional Solar thermal water pump will employ a novel engineering approach, utilizing a Fluid Piston Thermal Converter, operating on a combination of the Stirling and Rankine cycles. The maximum temperature and pressure within the device are about 100°C and 1 bar, respectively, and consequently, low cost components can be used for the manufacturing. The components of the novel design do not require high precision manufacturing and fitting and therefore can be made in an average mechanical workshop. In addition, there are no mechanical frictional losses

and wear and, as a result, the Thermal Converter has long
operational life and high reliability. Finally, the Thermal
Converter is auto-oscillation device and it is self-starting
device. Our aim is to research and develop a small-medium size
Fluidyne pump that can be used for the purpose of irrigation or
storage. The option to store the water as potential energy and
use it for electricity generation is also considered.

AWARDS

- Award of International Publication, Ain Shams University, Batch 29, July 2021.
- Award of International Student of Wind Turbine Challenge (ISWTC), Netherlands of obtaining the largest annual energy production of small wind turbine, Year: 2019.
- Award of International Student of Wind Turbine Challenge (ISWTC), Netherlands of obtaining the largest annual energy production of small wind turbine, Year: 2022.
- Faculty Dean of Engineering Award for Excellence, Ain Shams University, Egypt (2003).
- Annual Ain Shams University Award for Excellent Academic Achievements, (1999, 2000, 2001, and 2002).

PROFESSIONAL MEMEBERSHIPS

Member of Egyptian Engineers' Syndicate

PUBLICATIONS

Journal papers:

- 1. Ibrahim Gad-el-Hak, Ahmed E. Hussin, **Ashraf M. Hamed** and Nabil A. Mahmoud, "3D Numerical Modeling of Zeotropc Mixtures and Pure Working Fluid in an ORC Turbo-Expander", International Journal of Turbomachinery Propulsion and Power, Volume 2, Issue 1, doi: 103390/ijtpp2010002, 2017.
- 2. Ibrahim Gad-el-Hak, Ahmed Eldein Hussin, **Ashraf Moustafa Hamed** and Nabil Abdel Ai Mahmoud, "Numerical Investigation of the Effects of Number of Rotor and Nozzle Blades on the Performance of an ORC Turbo-Expander, American Journal of Mechanical and Automation, Volume 2, Issue 5, pp. 49-62, 2017.
- 3. A. M. Hamed, A. E. Hussin, M. M. Kamal, A. R. Elbaz, "Combustion of a hydrogen jet normal to multiple pairs of opposing methane–air mixtures", Proceedings of the Institution of Mechanical Engineers Part A: Journal of Power and Energy, Volume 231, Issue 2, pp. 145-158, doi: 10.1177/0957650916685944, 2017.
- 4. M. A. Nosier, M. M. Kamal, M. A. Khalek, **A. M. Hamed** and G. El Gamal, "Effect of Sharp Corners' Nozzles on Inverse Jet Diffusion Flames", International Journal of Mechanical Engineering (SSRG IJME) Volume 5, Issue 9, September 2018.
- Alaa Ismail, Abd-Allah El-Marhoumy, A. M. Hamed, A. M. T. Eldein Hussin, "Numerical Modeling for a Solar Chimney", Journal of Al-Azhar University Engineering Sector, Volume 14, Issue 50, pp. 87-98, doi: 10.21608/auej.2019.28512, 2019.
- 6. M. Samy Hefny, A. Taher Hussein, **A. Mostafa Hamed**, N. A. Mahmoud, "Nano-Fluid Effects on Total Entropy Generation through Plate Heat Exchangers", Journal of Al-Azhar University Engineering Sector, Volume 14, Issue 51, pp. 513-527, 2019.
- 7. Mohammed Amal M. Ammar, Nabil A. Mahmoud, Ahmed R. El-Baz and **Ashraf M. Hamed**, "Flow Modeling and Performance Assessment of Rotary Sliding Vane Pump Using Computational Fluid Dynamics", Journal of Al-Azhar University Engineering Sector, Volume 13, Issue 49, pp. 864-871, 2018.

- 8. Khaled M. Youssef, Ahmed M. El Kholy, **Ashraf M. Hamed**, Nabil A. Mahmoud, Ahmed M. El Baz and Tamer A. Mohamed, "An Innovative Augmentation Technique of Savonius Wind Turbine Performance", Journal of Wind Engineering, 2019.
- 9. Ahmed H. Hennawi, Nabil A. Mahmoud, Ahmed E. Hussin and **Ashraf M. Hamed**, "Numerical and Experimental Study of a Small-Scale Sliding Vane Pump", Journal of Al-Azhar University Engineering Sector, 2019
- A. E. Hussin, A. M. Hamed, M. M. Kamal and A. R. Elbaz, "Development of an Industrial Burner Accommodating Methane-Air Triple Flames", Combustion Science and Technology, DOI: 10.1080/00102202.2019.1649665, Volume 193, Issue, pp. 23-39, 2019.
- 11. Hazem Ali Abdel Karim, Ahmed Reda El-Baz, Nabil Abdel-Aziz Mahmoud, **Ashraf Mostafa Hamed**, "Numerical Analysis on the Performance of Dual Rotor Wind Turbine", International Journal of Scientific Research and Management (IJSRM), [www.ijsrm.in], ISSN (e): 2321-3418, DOI: 10.18535/ijsrm/v8i03.ec02, Volume 08, Issue 03, March 2020.
- 12. Ahmed Ashraf Abdelfattah, **Ashraf Moustafa** and A.M. Abdulaziz, "Analysis of Optimum Performance of Air Vessels Used in Damping Water Hammer Pressure Wave", Engineering Research Journal (ERJ) Faculty of Engineering Mataria, Helwan University, Volume 167, 2020.

Conference publications:

- A. Shouman, A. El-Dien Hussin, A. Hamed, M. Serag El-Din, N. Mahmoud, A. El-Baz, "Performance evaluation of a novel dual vane rotary compressor", 10th International Conference on Compressors and their Systems, IOP Conference Series: Materials Science and Engineering, Volume 232, Issue 1, pages 012060, doi:10.1088/1757-899X/232/1/012060, 2017.
- Ahmed M. El Baz, Nabil A. Mahmoud, Ashraf M. Hamed and Ahmed M. El Kholy, "Numerical Modeling of Savonius Wind Turbine with Downstream Baffle", Proceedings of ASME Turbo Expo 2015: Turbine Technical Conference and Exposition, Volume 9: Oil and Gas Applications; Supercritical CO₂ Power Cycles; Wind Energy, Paper No. GT2015-43992, pp. V009T46A027; 12 pages, doi: 10.1115/GT2015-43992, Montreal, Quebec, Canada, June 15–19, 2015.
- Ahmed M. El Baz, Nabil A. Mahmoud, Ashraf M. Hamed and Khaled M. Youssef, "Optimization of Two and Three Rotor Savonius Wind Turbine", Proceedings of ASME Turbo Expo 2015: Turbine Technical Conference and Exposition, Volume 9: Oil and Gas Applications; Supercritical CO₂ Power Cycles; Wind Energy, Paper No. GT2015-43988, pp. V009T46A026; 11 pages, doi: 10.1115/GT2015-43988, Montreal, Quebec, Canada, June 15–19, 2015.
- M. A. Nosier, M. M. Kamal, M. A. Khalek, A. M. Hamed and G. El Gamal, "Numerical Modeling of Inverse Jet Diffusion Flames Using Sharp Corners' Nozzles", Proceedings of ICFD13, Thirteenth International Conference of Fluid Dynamics, Paper No. ICFD13-EG-6052, Steigenberger Hotel El Tahrir, Cairo, EGYPT 21-22 December 2018.
- Amr Mohamed, Ahmed El-Baz, Nabil Abd-El Aziz, Ashraf Mostafa, "Aerodynamics Modeling of Dual Rotor Wind Turbine", Proceedings of ICFD13, Thirteenth International Conference of Fluid Dynamics, Paper No. ICFD13-EG-6049, Steigenberger Hotel El Tahrir, Cairo, EGYPT 21-22 December 2018.
- M. A. Elbeltagy, A. M. Hamed, A. R. Elbaz, N. A. Mahmoud, "Experimental Study of the Interaction of Straight Bladed Darrius Vertical Axis Wind Turbine", Proceedings of ICFD13, Thirteenth International Conference of Fluid Dynamics, Paper No. ICFD13-EG-6035, Steigenberger Hotel El Tahrir, Cairo, EGYPT 21-22 December 2018.
- M. A. Elbeltagy, A. M. Hamed, A. R. Elbaz, N. A. Mahmoud, "CFD Simulation of the Wake Interaction of Straight Bladed Darrius Vertical Axis Wind Turbine", Proceedings of ICFD13, Thirteenth International Conference of Fluid Dynamics, Paper No. ICFD13-EG-6036, Steigenberger Hotel El Tahrir, Cairo, EGYPT 21-22 December 2018.
- 8. Mostafa Zidan, **A. M. Hamed** and Nabil A. Mahmoud, "Performance of a Combined Configuration of Darrieus and Savonius Wind Turbines", Proceedings of ICFD13, Thirteenth International Conference of Fluid Dynamics, Paper No. ICFD13-EG-6090, Steigenberger Hotel El Tahrir, Cairo, EGYPT 21-22 December 2018.

- Amr Mohamed, Ahmed El-Baz, Nabil Mahmoud, Ashraf Hamed, Ahmed El-kholy, "CFD Simulation of Ducted Dual Rotor Wind Turbine for Small-Scale Applications", Proceedings of GT India, ASME 2019 Gas Turbine India Conference, Indian Institute of Technology Madras, Chennai, Tamil Nadu, India, GTIndia2019-2326, December 5 – 6, 2019.
- 10. Amr Mohamed, Ahmed El-Baz, Nabil Abd-El Aziz, **Ashraf Hamed,** "Computational Investigation of Ducted Dual Rotor Wind Turbine", Proceedings of NILES 2019, Novel Intelligent and Leading Emerging Sciences Conference, Giza, Egypt, October 28-November 4, 2019.