

# ***Professor Dr. Sayed Ahmed Abdel-Moneim***

## **Contact Details**

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## **Postal Address**

**Mech. Eng. Dept**

**Faculty of Eng. Shoubra, Benha Univ. (BU)**

**108 Shoubra St., Cairo Egypt**

## **Current Position**

***Professor, Mechanical Eng. Dept., Shoubra Faculty of Eng., Cairo, Egypt, Benha University.***

## **Education**

**Sept. 1992** , Ph D in Mechanical Power Engineering, "Heat Transfer to Air-Solids Turbulent Flow in Pipes", Faculty of Engineering, Cairo University, Egypt, Advisor Prof. Dr. M.S. Abdel-Salam.

**March 1989**, M Sc in in Mechanical Power Engineering, "Heat Transfer to Air in Turbulent Pipe Flow with Suspended Solid Powder", Faculty of Engineering, Cairo University, Egypt, Advisor Prof. Dr. M.S. Abdel-Salam.

**May 1984**, Bachelor of Mechanical Engineering (Power), Shoubra Faculty of Eng., Cairo, Egypt.

## **Current Research Interest**

- Heat transfer enhancement
- Energy storage systems
- Solar thermal systems
- Thermal desalination
- Exergy analysis of enhanced heat transfer techniques.
- Exergy analysis of combined gas turbine cycles.

## **Professional Experience**

1. Professor, and Vice Dean of the Faculty of Engineering, Northern Border University, (NBU), Arar- Kingdom of Saudi Arabia, KSA, (Sept. 2010 - 2013).
2. Professor, and Head of Mechanical Eng. Dept., Faculty of Eng., Northern Border Univ. (NBU), Arar- Kingdom of Saudi Arabia, KSA, (Sept. 2008 - Aug. 2010 ).
3. Professor, Mechanical Eng. Dept, Faculty of Eng., Garyounis Univ., Lybia, (2005-2008).
4. Professor, Mechanical Eng. Dept., Shoubra Faculty of Eng., Cairo, Egypt , Benha Univ., (March 2003 - 2005).
5. Visiting Professor, Mechanical Eng. Dept., Strathclyde Univ., Glasgow, UK, (March-September 2000).
6. Associate Professor, Mechanical Eng. Dept., Shoubra Faculty of Eng., Zagazig Univ., Cairo, Egypt ( 1998-March 2003).
7. Lecture, Mechanical Eng. Dept., Shoubra Faculty of Eng., Zagazig Univ., Cairo, Egypt ( 1992-1998).
8. Associate Lecture, Mechanical Eng. Dept., Shoubra Faculty of Eng., Zagazig Univ., Cairo, Egypt ( 1989-1992).
9. Research Assistant, Mechanical Eng. Dept., Shoubra Faculty of Eng., Zagazig Univ., Cairo, Egypt ( 1984-1989).

## **Teaching courses**

<b>Serial</b>	<b>Course title</b>	<b>Language of instruction/ Credit hrs</b>
1	Thermodynamics (I): Basis	English/ 3 Credit hrs
2	Thermodynamics (II): Applications	English/ 3 Credit hrs
3	Heat transfer	English/ 4 Credit hrs
4	Advanced Heat transfer <b>Post Graduate Course</b>	English/ 4 Credit hrs
5	Heat Exchangers	English/ 3 Credit hrs
6	Power Stations (I): Conventional	English/ 3 Credit hrs
7	Power Stations(II): Non-Conventional	English/ 3 Credit hrs
8	Refrigeration and AC (I): Basis	English/ 3 Credit hrs
9	Refrigeration and AC (II): Design	English/ 3 Credit hrs
10	Exergy analysis of thermal systems <b>Post Graduate Course</b>	English/ 4 Credit hrs
11	Desalination	English/ 4 Credit hrs
12	Numerical Analysis (I): Basis	English/ 4 Credit hrs
13	Numerical Analysis (II): Applications <b>Post Graduate Course</b>	English/ 3 Credit hrs
14	Research Projects <b>Post Graduate Course</b>	English/ 3 Credit hrs

## **Supervision of Thesis and Dissertations**

### **M. Sc. Thesis**

- 1) Study of The Heat Exchanger Network (H.E.N.) Flexibility, 2000.
- 2) Heat Transfer Enhancement in A Rectangular Duct with A Dimpled Bottom Wall, 2002
- 3) Enhanced Cooling of Modern Compact Electronic Components: Experimental Investigation, 2003
- 4) Natural Convection Cooling for Spent Fuel of Nuclear Reactors, 2005
- 5) Heat Transfer Enhancement in Pipe Flow with Downstream Pulsation, 2006
- 6) An Experimental Investigation of Turbulent Heat Transfer in A Rectangular Duct with One Ribbed Wall, 2007
- 7) Dynamic Modeling and Simulation of MSF Desalination Plants, 2007
- 8) Exergy and performance analysis of combined gas turbine with air bottoming cycle, 2007
- 9) Exergy and performance analysis of combined gas turbine with steam power cycles with different configurations , 2007
- 10) Experimental Study of Thermal Storage in Packed Beds with Exergy Analysis, 2008
- 11) Heat Transfer from A Plate Downstream of A Fence 2010
- 12) Unsteady-State Thermal Performance of Parabolic Trough Solar Collectors at Different Loads

### **Ph.D. Thesis**

- 1) Heat Transfer To Air-Solids Flow Inside A Horizontal Tube with Swirl and Different Entrance Angles, 1995.
- 2) Analysis of Current Carrying Capacity of Overhead Transmission Lines by Using Finite Elements Method, 1997.
- 3) Experimental and Numerical Investigation of Thermal Storage, 2001
- 4) Mathematical Modeling and Numerical Simulation for Fluidized Bed, 2007
- 5) Heat Transfer Enhancement in Internally Roughened Annulus

### **List of Publications (3 Books and 45 Papers)**

#### **Text Books in Mechanical Power Engineering (3 Books):**

- 1- "An Introductory Course in Engineering Thermodynamics", Faculty of Engineering (Shoubra) Zagazig Univ., Cairo Egypt, 1993,1996, 2000,2004.
- 2- "Engineering Thermodynamics", Faculty of Engineering (Shoubra) Zagazig Univ., Cairo Egypt, 1999,2003.
- 3- "Mechanical Engineering for Electrical Engineering students", Faculty of Engineering (Shoubra) Zagazig Univ., Cairo Egypt, 2004.

#### **Journal Papers (17 Papers):**

- 1- "Heat Transfer and Pressure Drop in a Tangentially Injected Swirl Flow through a Horizontal Tube", Eng. Research Jour., Vol. 2, PP. 220-231, Feb. 1995.
- 2- "An Experimental Study of Heat Transfer and Pressure Drop of Air-Solids Turbulent Flow inside a Horizontal Tube with Different Entrance Angles", Journal of Engineering and Applied Science, Faculty of Eng., Cairo Univ., Vol.42, No.4, Aug. 1995.

- 3- "Heat Transfer to A Turbulent Flow over An Inclined Rough Flat Plate", Eng. Research Jour., Vol. 50, pp.13-26, Nov. 1996.
- 4- "Transient Response of A Packed Bed As A Thermal Energy Storage System: Experimental and Numerical Study", Eng. Research Jour., Vol. 50, pp. 163-179, Nov. 1996.
- 5- "Numerical Study of Packed Bed Thermal Storage Systems with Encapsulated Phase Change Materials", Eng. Research Jour., Vol. 58, pp. 77-92, August 1998.
- 6- "Heat Transfer Enhancement Using Repeated Zigzag Ribs Affixed on The Bottom Wall of A Rectangular Channel", Eng. Research Jour., Vol. 72, pp.39-54, Dec. 2000.
- 7- "Computational Analysis of Heat Transfer in Turbulent Flow Past A Horizontal Surface with Two-Dimensional Ribs", Journal of Int. Communications in Heat and Mass Transfer, Vol.28, No.2, pp. 161-170, Feb., 2001.
- 8- "Performance Evaluation of Enhanced Heat Transfer Surfaces Using The Exergy Analysis", Eng. Research Jour., Vol. 81, pp. 174-190, June 2002.
- 9- "Heat Transfer and Flow Friction in A Rectangular Duct with A Dimpled Bottom Wall", Eng. Research Jour., Vol. 82, August 2002.
- 10- "Second law analysis of viscous flow through rough tubes subjected to constant heat flux", S.A. Abdel-Moneim and R.K. Ali, - Int. J. of Exergy, Vol.3, No.3, pp.323 – 343, 2006.
- 11- "Performance evaluation of heat transfer enhancement for internal flow based on exergy analysis", S.A. Abdel-Moneim and R.K. Ali, *Int. J. of Exergy, Vol. 4, No.4, pp. 401 - 420, 2007.*
- 12- "Hydrodynamic and Thermal Modeling of Gas-Particle Flow in Fluidized Beds", Int. Journal of Chemical Reactor Engineering, Vol.5, Issu 1, ISSN: 1542-6580, DOI: [10.2202/1542-6580.1573](https://doi.org/10.2202/1542-6580.1573), 2007.
- 13- "Dynamic Modeling and Simulation of MSF Desalination Plants" **Jordan Journal of Mechanical and Industrial Engineering**, JJMIE, Volume 4, Number 3, March 2010, ISSN 1995-6665 Pages 97 – 104.
- 14- "Exergy Analysis of A Supercharged Boiler Combined Cycle", American Journal of Engineering Research (AJER), e-ISSN: 2320-0847 p-ISSN: 2320-0936, Volume-02, Issue-12, pp-321-333.
- 15- "Heat Transfer and Flow Friction in A Rectangular Duct with Its Bottom Wall Roughened with Ribs of Different Geometries", submitted for publication in Journal of Int. Communications in Heat and Mass Transfer.
- 16 "Exergy Analysis of Combined Gas Turbine-Air Bottoming Cycle", submitted for publication in Int. Journal of Exergy.
- 17- "An Experimental Study of Thermal Energy Storage and Exergy Analysis In Packed Beds", submitted for publication in Int. Journal of Exergy.

### **Conference Papers (28 Papers)**

- 1- "A Modeling of Heat Transfer in Gas-Solids Turbulent Flow in Pipes", Proceedings of Al-Azhar Eng. 4<sup>th</sup> Int. Conf. (AEIC'95), Vol. 8, pp.111-128, Dec.16-19,1995.

- 2- "No-Load Unsteady-State Thermal Performance of Parabolic Trough Solar Collectors", Proceedings of Cairo 5<sup>th</sup> Int. Conf. on Energy and Environment, Vol. 1, pp.13-33, Cairo, Egypt, 1996.
- 3- "An Experimental Study of Heat Transfer in A Turbulent Flow over An Inclined Flat-Plate", Proceedings of Cairo 5<sup>th</sup> Int. Conf. on Energy and Environment, Vol. 1, pp. 211- 223, Cairo, Egypt, 1996.
- 4- "An Experimental Investigation of Heat and Momentum Transfer in A Turbulent Decelerated Flow over A Rough Flat Plate", Proceedings of Cairo 5<sup>th</sup> Int. Conf. on Energy & Environment, Vol.1, pp.197-210, Cairo, Egypt, 1996.
- 5- " An Experimental Investigation of Heat Transfer and Pressure Drop in A Turbulent Dusty-Air Flow in Pipes", Proceedings of the 5<sup>th</sup> Int. Conf. on Energy and Environment, Vol.1, pp.183-196, Cairo, Egypt, 1996.
- 6- "Heat Transfer to Air in Turbulent Pipe Flow with Suspended Solid Powder", Proceedings of Al-Azhar Eng. 4<sup>th</sup> Int. Conf. (AEIC'95), Vol. 8, pp.129-146, Dec.16-19,1995.
- 7- "Heat Transfer in Two-Phase Gas-Solids Dilute-Suspensions Flow in Pipes: A Parametric Study", Proceedings of the Int. Congress on Fluid Mech. and Propulsion, (ASME-Int.),Vol. 1, pp. 65-76, Cairo, Egypt, Dec., 1996.
- 8- "Transient Response of Packed Bed Thermal Energy Storage Systems: Experimental and Numerical Study", Proceeding of the 2<sup>nd</sup> Jordanian Int. Conf. for Mechanical Engineering, (JIMEC97),Vol.1, pp.696-712 , June 3-6, 1997.
- 9- "Effect of The Environmental Conditions on The Thermal Rating of ACSR Conductors", Proceeding of Al-Azhar Eng. 5<sup>th</sup> Int. Conf. (AEIC'97), Vol. 6, pp.20-31, Dec. 19-22,1997.
- 10- "Numerical Investigation of The Transient Response of Packed Bed Thermal Storage Systems with Phase Change Packing Materials", Proceeding of Al-Azhar Eng. 5<sup>th</sup> Int. Conf. (AEIC'97), Vol. 8, pp.160-175, Dec.19-22,1997.
- 11- "Thermal Energy and Exergy Storage in Packed Beds: Part I System Charging", Proceeding of The 1<sup>st</sup> Minia Int. Conf. for Advanced Trends in Engineering, (MICATE 99), Vol.4, pp.224-238, March 14-17, 1999.
- 12- "Thermal Energy and Exergy Storage in Packed Beds: Part II System Recovery", Proceeding of The 1<sup>st</sup> Minia Int. Conf. for Advanced Trends in Engineering, (MICATE 99), Vol. 4, pp. 239-255, March 14-17, 1999.
- 13- "Heat Transfer and Flow Characteristics in Helically Rib-Roughened Tubes", Proceedings of 11<sup>th</sup> International Mechanical Power Engineering Conference (IMPEC 11), Vol.1, pp H60-H74, Feb. 5-7, 2000.
- 14- "Impact of The Environmental Conditions on The Current Carrying Capacity of Overhead Transmission Lines", Proceedings of Cairo 7<sup>th</sup> Int. Conf. on Energy and Environment, Vol. 2 , pp 625-635, Cairo, Egypt, March 11-13,2000.
- 15- "Thermal Analysis for The Connections of Transmission Lines", Proceedings of Cairo 7<sup>th</sup> Int. Conf. on Energy and Environment, Vol.1, pp 407-422, Cairo, Egypt, March 11-13,2000.
- 16- "Experimental Study of Heat Transfer and Flow Friction in Artificially Roughened Annulus", Proceedings of Cairo 7<sup>th</sup> Int. Conf. on Energy and Environment, Vol.1, pp 371-385, Cairo, Egypt, March 11-13,2000.

- 17- "Heat transfer enhancement in a tangentially injected swirl flow through a roughened tube", Proceedings of Al-Azhar Eng. 6<sup>th</sup> Int. Conf. (AEIC2000), Vol.7, pp.175-190 , Sept. 1-4,2000.
- 18- "Two-Dimensional Analysis of A Straight Fin in A Flow Field with A Location Dependent Heat Transfer Coefficient", Proceedings of the 9<sup>th</sup> Int. Conf. On Aerospace Sciences & Aviation Technology (ASAT9), Vol.I, P.No.TH02, pp.613-632, May 8-10, 2001.
- 19- "Heat transfer and Flow Friction of A Tangentially Injected Swirl Flow in Helically Rib-Roughened Annuli", Proceedings of the 9<sup>th</sup> Int. Conf. On Aerospace Sciences & Aviation Technology (ASAT9), Vol.I, P.No.TH03, pp.633-650, May 8-10,2001.
- 20- "Heat Transfer and Flow Friction in A Rectangular Duct with Repeated Multiple V-Ribs Mounted on The Bottom Wall" Proceedings of the 12<sup>th</sup> Int. Mechanical Power Eng. Conf. (IMPEC12), Vol.2, P.No.H2, pp.H11-H25, Oct.30<sup>th</sup>- Nov.1<sup>st</sup>, 2001.
- 21- "Analysis of Heat Transfer in Turbulent Flow Past An Array of Two-Dimensional Ribs Mounted on A Flat Surface", Proceedings of Cairo 8<sup>th</sup> Int. Conf. On Energy and Environment, EE8, Paper No. 2B-4, Cairo, Egypt, January, 4-7, 2003.
- 22- "Study of The Heat Exchanger Network Flexibility", Proceedings of Cairo 8<sup>th</sup> Int. Conf. On Energy and Environment, EE8, Paper No. 6B-4, Cairo, Egypt, January, 4-7, 2003.
- 23- "Heat Transfer from An Electronic Module Placed Downstream of A Fence", Proceedings of the 10<sup>th</sup> Int. Conf. On Aerospace Sciences & Aviation Technology (ASAT10), Vol. I, Paper No.TH-1, May, 2003.
- 24- "Heat Transfer Enhancement in A Latent Heat Thermal Storage System Using Externally Finned Channels: Numerical and Experimental Study", Proceedings of the 2<sup>nd</sup> Annual Regional Conf. (ASHRAE), Paper No. RAL-3-5, Cairo-Egypt, September 6-8, 2003.
- 25- "PEC for Enhanced Heat Transfer Based on Exergy Analysis", Proceeding of The 3<sup>rd</sup> Minia Int. Conf. for Advanced Trends in Engineering, (MICATE 05), Vol.4, pp.224-238, March 14-17, 2005.
- 26- "Second Law Analysis of Viscous Flow Through Rough Tubes Subjected To Constant Heat Flux", proceeding of The 2<sup>nd</sup> Int. Conf. on Advances in Engineering science & Technology 12-14 Nov., 2005.
- 27- "Natural Convection Cooling for Spent Fuel of Nuclear Reactors", proceeding of The 2<sup>nd</sup> Int. Conf. on Advances in Engineering science & Technology 12-14 Nov., 2005.
- 28- "Heat Transfer and Pressure Drop in Pulsating Flow through Tubes", proceeding of The 2<sup>nd</sup> Int. Conf. on Advances in Engineering science & Technology 12-14 Nov., 2005.

### **Conference Attending and Participations**

Serial	Conference	Place and Date
1	Al-Azhar Faculty of Eng. 4 <sup>th</sup> Int. Conf. (AEIC'95)	Cairo, Egypt, Dec.16-19,1995.

2	International Water Technology Conf. (IWTC 95)	Alexandria, Egypt, Feb.26-29, 1996.
3	Cairo 5 <sup>th</sup> Int. Conf. on Energy and Environment	Cairo, Egypt, 1996
4	Proceedings of the Int. Congress on Fluid Mech. and Propulsion, (ASME-Int.),	Cairo, Egypt, Dec., 1996.
5	the 2 <sup>nd</sup> Jordanian Int. Conf. for Mechanical Engineering, (JIMEC97)	Cairo, Egypt, June 3-6, 1997.
6	Al-Azhar Eng. 5 <sup>th</sup> Int. Conf. (AEIC'97)	Cairo, Egypt, Dec. 19-22, 1997
7	The 1 <sup>st</sup> Minia Int. Conf. for Advanced Trends in Engineering, (MICATE 99)	Minia, Egypt, March 14-17, 1999
8	11 <sup>th</sup> International Mechanical Power Engineering Conference (IMPEC 11)	Cairo, Egypt, , Feb. 5-7, 2000
9	Cairo 7 <sup>th</sup> Int. Conf. on Energy and Environment, (EE7)	Cairo, Egypt, March 11-13, 2000
10	Al-Azhar Eng. 6 <sup>th</sup> Int. Conf. (AEIC2000)	Cairo, Egypt, Sept. 1-4, 2000
11	The 9 <sup>th</sup> Int. Conf. On Aerospace Sciences & Aviation Technology (ASAT9)	Cairo, Egypt, May 8-10, 2001
12	the 12 <sup>th</sup> Int. Mechanical Power Eng. Conf. (IMPEC12)	Mansora, Egypt, Oct.30 <sup>th</sup> -Nov.1 <sup>st</sup> , 2001
13	Cairo 8 <sup>th</sup> Int. Conf. On Energy and Environment, (EE8)	Cairo, Egypt, January, 4-7, 2003.
14	The 10 <sup>th</sup> Int. Conf. On Aerospace Sciences & Aviation Technology (ASAT10),	Cairo, Egypt, May, 2003.
15	the 2 <sup>nd</sup> Annual Regional Conf. (ASHRAE),	Cairo-Egypt, September 6-8, 2003.
16	The 3 <sup>rd</sup> Minia Int. Conf. for Advanced Trends in Engineering, (MICATE 05)	Minia, Egypt, March 14-17, 2005.
17	The 2 <sup>nd</sup> Int. Conf. on Advances in Engineering science & Technology	Cairo, Egypt, 12-14 Nov., 2005
18	Al-Azhar Eng. Int. Conf. (AEIC2007)	Cairo, Egypt, 12-14 April., 2007

### **Technical Training, Short Courses and Applied Engineering Activities**

Serial	Activity	Place of the Activity
1	"Heat Exchangers, Fired Heaters and Reboilers", Continued Training Program from 2003-up to now	Jannah Hunt Petroleum oil company, USA-Yemen Co., Sana'a, Yemen.
2	Training Courses in the field of "Air Conditioning Systems Theory and Practice"	Republic Consultation Office, Benghazi-Libya
3	Egyptian Air Force Academy (EAFA)	Telemidia-Inc, USA-Arab

	Modernization Program	Inc., Cairo, Egypt.
4	Construction and Operation of A Hydraulics Lab.	Faculty of Engineering at Shoubra-Cairo-Egypt.
5	Construction and Operation of A Pump Test Unit	Faculty of Engineering at Shoubra-Cairo-Egypt
6	Design and Construction of A Heat Transfer Apparatus: Enhanced Convection Measurements	Mechanical Engineering Department, Strathclyde University, Glasgow, UK.
7	Design and Construction of A Packed Bed Thermal Energy Storage System	Faculty of Engineering at Shoubra-Cairo-Egypt
8	Design and Construction of A Thermal Energy Storage System with Phase Change Materials (PCM)	Faculty of Engineering at Shoubra-Cairo-Egypt
9	Design and Construction of A Heat Transfer Apparatus: Enhanced Convection Measurements	Faculty of Engineering at Shoubra-Cairo-Egypt
10	Design and Construction of A Hot Water Supplying System for Domestic Application	El-Nasharty Tower, Gizza, Cairo, Egypt
11	Design and Construction of The System of Elevators	Zahart-El-Nile Towers, Gizza, Cairo, Egypt

**Additional Skills:**

**Languages** English (Very good –Verbal and Written)  
Arabic (Basic)

**IT** Computer programmer and model creative in the field of thermo-fluid applications, User of most windows operating systems and MS office Suite packages- have extensively used Microsoft Word, Excel, Power Point.

**Memberships:**

- 1)Egypt Syndicate of Engineers, Cairo Branch.
- 2)Egyptian Society of Mechanical Engineers.
- 3) Egyptian Society of Refrigeration