

Talal M. Abou Elmaatry, Ph.D.
Assoc. Professor



Summary

Dr. Talal is an **associate professor** of Power Mechanical Engineering at Nuclear Research Center/ Egypt Atomic Energy Authority. He received his Ph.D. in Power Mechanical Engineering from Cairo University. He has a B.Sc. in Power Mechanical Engineering from Mansoura University and a M.Sc. in Power Mechanical Engineering from Cairo University, in addition to several years of experience in nuclear research reactors thermal-hydraulics studies, he has experience in *enhancement of Heat exchangers performance, nano particles and their effects when using in compact heat exchangers and Sea water desalination by adopting advanced techniques*. Also; He has extensive practical experience in research reactors work / design (Reactor Manger for ETRR2 reactor 2013-2015, Operation Head for ETRR2, 2008-2013, Reactor shift supervisor 1998-2008, reactor operator 1996-1998). He has excessive external theoretical and practical training in the field of reactors safety (Argentina, Austria, Germany). He has shared in many committees like reactor safety committee 2003-2014, and emergency committee 2014-2015. He has a good experience in teaching the power mechanical engineering courses at Tanta University, Mansoura University and Kafr El-Shikh University since 2007 till now.

- Moderate research background. Authored and Co-authored about 14 research papers. Published and presented in the reputed Nuclear and Mechanical engineering journals [Annals of Nuclear Energy, KERNTECHNIK ,Energy , Applied Thermal Engineering ,Arab Journal of Nuclear Sciences and Applications]

Education

2002 – 2007 Ph.D. in Power Mechanical Engineering, Cairo University, **Thesis:** “*Thermal-hydraulic modeling of reactivity accident in MTR reactors*”.

1998 – 2002: M.Sc. in Power Mechanical Engineering, **Thesis:** “*Reflux Condensation Heat Transfer Characteristics in counter current Flow LOCA*”, Cairo University, EGYPT.

1987 – May 1992: B.Sc. in Power Mechanical Engineering, Mansoura University, Egypt, grade: **Very Goode**.

Professional Experience

Sept 2015 – Present: Associate Professor - Basic Sciences Department, El-Mansoura High Institute of Engineering and Technology, EGYPT. Teaching the following undergraduate courses graduate

- **Engineering physics-1**
- **Engineering physics-1**
- **Buildings air conditioning**

Sept 2015 – May 2016: Associate Professor – Power Mechanical engineering Department, Mansoura University, EGYPT. Teaching the following undergraduate project course

- **Preliminary study for pressurized water reactor**

Sept 2015 – May 2016: Associate Professor – Power Mechanical engineering Department, Tanta University, EGYPT. teaching the following undergraduate and graduate courses

- **Sea water desalination (under graduate)**
- **Sea water desalination (graduate)**
- **Steam equipments (graduate)**

Sept 2014 – Sept 2015: Associate Professor – Reactors Department, nuclear research Center, Atomic Energy Authority, EGYPT. Research reactors safety evaluations, thermal - hydraulic studies for the purposed experiments. Study and evaluation for the technical cooperation between INVAP (Argentina) and ETRR2 reactor .

Sept 2014 – May 2015: Associate Professor – Power Mechanical engineering Department, Tanta University, EGYPT. Teaching the following undergraduate and graduate courses

- **Sea water desalination (under graduate)**
- **Sea water desalination (graduate)**
- **Renewable energy(graduate)**
- **Steam equipments (graduate)**

Sep 2007 – Sept 2014: Assistant Professor – Reactors Department, nuclear research center, Atomic Energy Authority, EGYPT. Research reactor operation, Research reactors safety parameters analysis, Safety analysis report revision, study of Mo-99 production and safety documentations and training new operators.

2007 – 2014: Assistant Professor – Power Mechanical engineering Department, Tanta University, EGYPT. Teaching the following undergraduate and graduate courses

- *Building air conditioning*
- *Thermal power station*
- *Advanced Heat transfer*
- *Thermodynamics*
- *Sea water desalination*
- *Water treatment and purifications*
- *Renewable Energy*
- *Economics of Energy*
- *Gas turbine.*
- *Heat exchangers*
- *Measurements and control*
- *Engineering Drawing*
- *Computer Applications*
- *Nuclear power station.*

Professional Affiliations

A membership in Egyptian Society of Nuclear Sciences and Applications, (ESNSA)

Professional Activities

- ***Major Technical Responsibility at ETRR-II Reactor, Atomic Energy Agency.***
 - ➤ 2014 – 2015 Emergency committee Member
 - ➤ 2013 – 2015 Reactor Manger
 - ➤ 2003 – 2015 Safety Committee Member.
 - ➤ 2008 – 2013 Reactor operation head, 1/2009, ETRR-II, AEA, Egypt.
 - ➤ 1998 – 2008 Licensed Shift Supervisor, O.L-4/98, ETRR-II, AEA, Egypt.
 - ➤ 1996 – 1998 Licensed reactor operator, License No. 825 from Argentina
 - ➤ 1995 –1996 Site engineer and Commissioning participant, AEA,

- **Reviewer for the following journals:**
 - *Certificate of Reviewing, Elsevier, Annals of nuclear Energy journal, Amsterdam, the Netherlands, awarded in “Recognition of the Review made for the journal”, June 2014*

 - *Certificate of Excellence of Reviewing, Elsevier, Annals of nuclear Energy journal, Amsterdam, The Netherlands, awarded in. “IN RTECOGINATION OF AN OUTSTANDING CONTRIBUTION TO THE QUALITY OF THE JOURNAL “, June 2013.*

Continuing Education and Personal development

External Scientific visits & training

- Participated in INPRO Dialogue Forum 8. Toward Nuclear Energy System Sustainability: Economics, Resource Availability, and Institutional Arrangements Vienna International Centre (VIC), IAEA Headquarters, Vienna, AUSTRIA, 26th – 29th August, 2014. IAEA
- Participated in workshop on Safety Analysis and Safety Documents for Research Reactors, Vienna, Austra. 12-16 May 2014. IAEA
- Enhancing Research Reactor Utilization and Safety- Meeting of the Regional Advisory Safety committee for Research Reactor in Africa (RASCA) 2-6 December 2013 in Rabat, Morocco
- Workshop on the interface between Safety and Security of , Research Reactors 7 – 11 Oct. 2013, Vienna
- Participating in the workshop held by IAEA, “Synergy between Safety and security for research Reactors”, 22-25 Nov. 2011,IAEA, Vienna
- Participating in International Atomic Energy (IAEA) Technical Meeting on “Promote the Awareness and the Use of Nuclear Facilities and Related Simulators as Effective Tools for Education and Research and for Capacity Building" held in Essen, Germany from 23 to 25 May 2011.
- Scientific visit for thermal-hydraulic calculation participation at Balseiro Istitute, Bariloche, Argentina, (6- weeks), from 18 Apr – 30 May 2010.

- World Nuclear University training program (6- weeks) Republic of Korea. 2007,(Thermal hydraulic calculations)
- Research reactor thermal-hydraulic, (one week) Hungaria, Budabest 2005
- Training course for the operating staff of Egypt Second Nuclear research reactor, ETRR 2, from April, 1st to Dec.10th - 1996, in CNEA – INVAP at Bariloche – Argentina (Heat transfer, fluid mechanics Thermal-hydraulic, nuclear engineering) (9-monthes).

Attended Courses:-

- Automatic control of closed loop lines using programmable logic circuit (PLC), Laboratory of industrial ministry, eight weeks, 1997, Cairo, Egypt.
- Radiation protection (one month,) Nuclear Research Center, AEA, Cairo, Egypt.1997.
- Introduction for Research reactors operation (One month – heat transfer, fluid mechanics, nuclear engineering, measurements, reactor safety) Nuclear Research Center, AEA, Cairo, Egypt.1998
- Reactor Shift supervisors Training program (one month, Thermal-hydraulic and reactor safety) Nuclear Research Center, AEA, Cairo, Egypt..1998
- Advanced courses on heat transfer by conduction, measurements, thermal radiation and heat transfer in electronic packages, Sep.1998 – May 1999, Cairo University (Egypt).
- The use of radioisotopes and radiation protection, 7 April – 9 May 2001, Cairo,Egypt.
- PhD qualification courses, (six months), "Nuclear power station, two phase flow, Thermodynamics and control ", Power Mec. Engineering Dept, Cairo University, Egypt, 2002

Publications,

- Experimental Investigation of Corrugated Plate Heat Exchanger Friction Factor, Arab Journal of Nuclear Sciences and Applications, Accepted in 1April 2014, Talal Abou Elmaaty
- Economic analysis of a small-scale hybrid air HDH- SSF (humidification and dehumidification-water flashing evaporation) desalination plant , Energy 53 (2013) 306-311, A.E. Kabeel, Talal Abou Elmaaty, Emad M.S. El-Said.
- The effect of using nano-particles on corrugated plate heat exchanger Performance. *Applied Thermal Engineering*, ATE 30 November 2012, Article in press , A.E. Kabeel, T. Abou El Maaty*, Y. El Samadony
- Natural Convection cooling for LEU irradiated Fuel Plates, *Annals of Nuclear Energy* 40 (2012) 116 -121, Talal Abou El maaty.
- Thermal-hydraulic modeling of reactivity accident in MTR reactors, *Annals of Nuclear Energy*, 34(2007) 732-742, Hany Khater, Talal Abou-EL-Maaty and Salah El-Din EL-Morshdy .
- Uncontrolled Withdrawal of a control rod without scram *Annals of Nuclear Energy*, 35 (2008) 11-17, Talal Abou-EL-Maaty.

- **Reactor thermal hydraulic behaviors under kinetics parameters variations in fast reactivity insertion, *Annals of Nuclear Energy*, 36 (2009) 240 -245 , Talal Abou-El-Maaty, Amr Abd el hady.**
- **Plate Heat Exchanger – Inertia Flywheel Performance in Loss of Flow Transient, Talal Abou-ElMaaty, Amr Abdelhady in *KERNTECHNIK* 74 (2009) 1-2, 35-41.**
- **Thermal Analytical Model for MoO₃ Ampoule irradiated in a high neutron flux, Amr Abdelhady, Talal Abou- El-Maaty. *KERNTECHNIK* 74 (2009) 1-2, 47 -50.**
- **Modeling of postulated accident release of ⁹⁹MoO₃ powder from ETRR-2 Stack, *Annals of Nuclear Energy*, 36 (2009) 1498 -1501, Talal Abou-El Maaty, Amr Abdelhady**
- **Thermal contact resistance and ambient temperature effects on the cooling of Mo⁹⁹ plate targets inside the hot cell, *Annals of Nuclear Energy*, 53 (2013) 476–484 , Talal Abou El maaty**
- **Experimental investigation of the hot water layer effect on upward flow open pool reactor operability, Arab Journal of Nuclear Sciences and Applications, Accepted in 20 Feb. 2014, Talal Abou Elmaaty**