

## CURRICULUM VITAE

### EDUCATION

**1990:** B. Sc. in Mechanical Engineering

Middle East Technical University, Ankara, Turkey

**1992:** M. Sc. in Nuclear Engineering

Middle East Technical University, Ankara, Turkey

**1998:** Ph.D. in Mechanical Engineering

Helsinki University of Technology, Helsinki, Finland

Major subject: Thermal Engineering, minor subject: Power Plant Engineering

### PUBLICATIONS

- 1- **M. Assad**, Effect of feedwater temperature rise in heaters on regenerative Rankine cycle performance. *Int. J. Mechanical Engineering Education*, 25, 2 (1997).
- 2- **M. Assad**, Thermodynamic analysis of waste-heat thermoelectric generators. *Int. J. Mechanical Engineering Education*, 25, 3 (1997).
- 3- **M. Assad**, Finite-time thermodynamic analysis of combined heat engines. *Int. J. Mechanical Engineering Education*, 25, 4 (1997).
- 4- **M. Assad**, Thermodynamic analysis of thermoelectric coolers. *Int. J. Mechanical Engineering Education*, 26, 3 (1998).
- 5- **M. Assad**, Performance Characteristics of Thermal cycles and Energy Conversion Systems, Ph.D. Thesis, *Acta Polytechnica Scandinavica*, Mechanical Engineering Series No. 130, Helsinki University of Technology, 1998.
- 6- **M. Assad**, Well mixed model analysis in indoor air quality. *Int. J. Mechanical Engineering Education*, 27, 2 (1999).
- 7- **M. Assad**, Performance characteristics of an irreversible refrigerator. Recent Advances in Finite-Time Thermodynamics, Chih Wu *et al.* (Editors), Nova Science, 1999.
- 8- **M. Assad** and Chih Wu, Performance characteristics of a MHD power plant. Recent Advances in Finite-Time Thermodynamics, Chih Wu *et al.* (Editors), Nova Science, 1999.

- 9- **M. Assad**, Thermodynamic analysis of an irreversible MHD power plant. *Int. J. Energy Research*, 24, 10 (2000).
- 10- **M. Assad**, Performance characteristics of an irreversible refrigerator. *Int. J. Energy, Environment and Economics*, 10, 2 (2000).
- 11- R. Wiksten and **M. Assad**, General theory of heat exchangers. Industrial Ventilation Design Guidebook, Eds. H. Goodfellow and E. Tähti, Academic Press (2001).
- 12- R. Wiksten and **M. Assad**, Plate fin-and-tube heat exchangers. Industrial Ventilation Design Guidebook, Eds. H. Goodfellow and E. Tähti, Academic Press (2001).
- 13- R. Wiksten, **M. Assad** and Håkon Skistad, Heating of industrial Premises. Industrial Ventilation Design Guidebook, Eds. H. Goodfellow and E. Tähti, Academic Press (2001).
- 14- M. J. Lampinen and **M. Assad**, Heat and mass transfer. Industrial Ventilation Design Guidebook, Eds. H. Goodfellow and E. Tähti, Academic Press (2001).
- 15- **M. Assad** and M. J. Lampinen, Film condensation between two vertical plates. *Int. J. Ambient Energy*, 23, 2 (2002).
- 16- **M. Assad** and M. J. Lampinen, Mathematical modelling of liquid film evaporation process. *Int. J. Refrigeration*, 25, 7 (2002).
- 17- H. Sulamäki, **M. Assad**, M. Lampinen and Esko Tähti, Analysis of water hammer: basic equations and applications. *Talotekniikka*, 5, 2002 (in Finnish).
- 18- Ari Seppälä, M. J. Lampinen and **M. Assad**, A study on the zero flux approximation in convection-diffusion mass transfer problems. *Int. Comm. Heat Mass Transfer*, 30, 2 (2003).
- 19- Ari Seppälä and **M. Assad**. The effect of solute leakage on the thermodynamical performance of an osmotic membrane. *J. Non-equilibrium Thermodynamics*, 28 (2003).
- 20- **M. Assad** and Chih Wu, Performance of a regenerative MHD power plant. *Int. J. Energy and Power Systems*, 24, 2 (2004).
- 21- Markku Lampinen, Voitto Kotiaho, and **M. Assad**, Application of axial fan theory to horizontal-axis wind turbine. *Int. J. Energy Research*, 30 (2006).
- 22- **M. Assad**, Optimum performance of an irreversible MHD power plant. *International Journal of Exergy*, 4, 1 (2007).

- 23- Ralf Wiksten and **M. Assad**, Heat and mass transfer characteristics in a spray chamber. *Int. J. Refrigeration*, 30, 7 (2007).
- 24- Ari Seppälä and **M. Assad**, Optimal structure for heat and cold protection under transient heat conduction. *Structural and Multidisciplinary Optimization*, 36 (2008).
- 25- **M. Assad** and Chih Wu, Thermodynamic performance of an irreversible MHD power cycle running at constant Mach number. *Int. J. Ambient Energy*, 29, 1 (2008).
- 26- Ralf Wiksten and **M. Assad**, Heat and mass transfer characteristics of a wavy fin-and-tube heat exchanger under fully and partially wet surface conditions. *Int. J. Thermal Sciences*, 49 (2010).
- 27- **M. Assad**, Effect of maximum and minimum heat capacity rate on entropy generation in a heat exchanger. *Int. J. Energy Research*, 34 (2010).
- 28- **M. Assad** and Voitto Kotiaho, Thermal analysis of a counterflow heat exchanger with a heat source. *Int. J. Ambient Energy*, 31 (2010).
- 29- **M. Assad** and Voitto Kotiaho. Analysis of a parallel flow heat exchanger with a heat source. *Heat Transfer Engineering*, 32 (2011).
- 30- **M. Assad**, Entropy generation analysis in a slab with non-uniform heat generation subjected to convection cooling. *Int. J. Exergy*, 9 (2011).
- 31- **M. Assad** and Hakan F. Oztop, Parametric study of entropy generation in a fluid with internal heat generation between two rotating cylinders subjected to convective cooling at the surface. *ISRN Chemical Engineering*, Volume 2012 (2012), Article ID 941587.
- 32- **M. Assad**, Cooling load optimization for an irreversible refrigerator with combined heat transfer. *Int. J. Energy & Environment*, 4 (2013).
- 33- **M. Assad** and David C. Brown, Thermodynamic analysis of end-pumped fiber lasers subjected to surface cooling. *IEEE Journal of Quantum Electronics*, 49 (2013).
- 34- Christer Nylund and **M. Assad**, Energy optimization of heat engine with infinite heat capacity reservoirs. *Int. J. Thermal & Environmental Engineering*, 6 (2013).
- 35- **M. Assad**, Study of entropy generation in a slab with non-uniform internal heat generation. *Thermal Science*, 17 (2013).

- 36- Christer Nylund and **M. Assad**, Energy Optimization of Heat Engine with Infinite Heat capacity reservoirs. *Int. J. Thermal & Environmental Engineering*, 6 (2013).
- 37- M. Kuosa, M. Aalto, **M. Assad**, T. Mäkila, M. Lamppinen and R. Lahdelma, Study of a district heating system with the ring network technology and plate heat exchangers in a consumer substation. *Energy and Buildings*, (2014).
- 38- **M. Assad**, Thermodynamic analysis of MHD power plant running at constant velocity. *Int. J. Energy, Environment and Economics*, 22 (2014).
- 39- A. Sedaghat, **M. Assad** and M. Gaith, Aerodynamics performance of continuously variable speed horizontal axis wind turbine with optimal blades. *Energy* (2014).
- 40- A. Sedaghat, Iman Samani, M. Ahmadi-Baloutaki **M. Assad** and M. Gaith, Computational Study on Novel Magnus Type Aerofoils for use in Wind Turbine Blades. *Energy* (2015).
- 41- **M. Assad**, Thermodynamic analysis of MHD Power Cycle. *J. Robotics and Mech. Eng. Research*, (2015).
- 42- Voitto Kotiaho, Markku Lampinen, and **M. Assad**, Effect of heat exchangers connection on effectiveness. *J. Robotics and Mech. Eng. Research* (2015).
- 43- K. Khanafer and **M. Assad**, A numerical investigation of mixed convection in a lid driven cavity with two cylinders. *Applied Mechanics and Materials*, volume: Manufacturing Science and Technology VI (2015) and Mass Transfer (2015).
- 44- M. Gaith, **M. Assad**, A. Sedaghat, M. Hiyasat and S. Alkhatib, Structural Crack detection in composite materials using neural networks. *Int. J. Comp. Civil and Structural Engineering* (2015).
- 45- **M. Assad**, M. AlSarheed, A. Sedaghat and K. Khanafer, Performance evaluation of MHD power plant at optimal operating conditions. *Int. J. Energy, Environment and Economics* (2016).
- 46- M. Nadim, N. Saidi, I. Hasani, Y. El Banna, O. Samir, **M. Assad** and S. Shamekh, Effects of some environmental parameters on Mycelia growth of Finnish truffle Tuber Maculatum. *Int. J Eng.& Applied Sciences* (2016).

## CONFERENCES

- 1- **M. Assad**, Optimum pin fin geometrical parameters. CMES-04, Proceedings of the First Cappadocia Int. Mechanical Engineering Symposium, 14-16 July 2004, Cappadocia, Turkey.
- 2- **M. Assad**, Optimum performance of a pin fin. 4<sup>th</sup> Int. Conference on Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT 2005), 19-22 September 2005, Cairo, Egypt.
- 3- **M. Assad**, Optimum performance of an irreversible MHD power plant. Third International Conference on Energy Research & Development (ICERD-3), 21-23 November 2005, Kuwait.
- 4- **M. Assad**, Performance characteristics of a solar driven heat engine with internal irreversibilities. Global Conference on Renewable Energy Approaches for Desert Regions, 18-22 September 2006, Amman, Jordan.
- 5- Voitto W. Kotiaho, Markku J. Lampinen and **M. Assad**, Effectiveness of heat exchangers connected in series. Global Conference on Renewable Energy Approaches for Desert Regions, 18-22 September 2006, Amman, Jordan.
6. **M. Assad**, Analysis of MHD power plant operating at maximum power and maximum power density. Fourth International Conference on Energy Research & Development (ICERD-4), 17-19 November 2008, Kuwait.
7. **M. Assad** and Voitto Kotiaho , Analysis of a counterflow heat exchanger with a heat source. ICEGES 2009, 10-12 November 2009, Amman, Jordan.
8. **M. Assad**, Performance of Parallel Flow Heat Exchanger with a Heat Source. ICARAME'11: International Conference on Advanced Research and Applications in Mechanical Engineering, Notre Dame University-Louaize, Lebanon, June 13-15, 2011.
9. Mohamed Gaith, **M. Assad**, Ahmad Sedaghat, Structural Crack Detection in Composite Materials using Neural Networks, Second International Conference on Advances in Civil, Structural and Mechanical Engineering - CSM 2014, University of Birmingham, UK, 16-17 November, 2014.
10. Ahmad Sedaghat, **M. Assad**, Mohamed Gaith, M.T. Esfidani, Exergy Analysis of Reactive Combustion Processes in Gas Heaters, Proceedings of the 2015 International Conference on Industrial Engineering and Operations Management, Dubai, United Arab Emirates (UAE), March 3 – 5, 2015.

11. Mohamed Gaith, **M. Assad**, Ahmad Sedaghat, Heat Losses from Human Body in Weather Condition of Amman City, Proceedings of the 2015 International Conference on Industrial Engineering and Operations Management, Dubai, United Arab Emirates (UAE), March 3 – 5, 2015.
12. Mohamed Gaith, **M. Assad**, Ahmad Sedaghat, Neural Network Usage in Structural Crack Detection, Proceedings of the 2015 International Conference on Industrial Engineering and Operations Management, Dubai, United Arab Emirates (UAE), March 3 – 5, 2015.
- 13- K. Khalil, **M. Assad**, A Numerical Investigation of Laminar Mixed Convection Flow and Heat Transfer in a Lid Driven Cavity with Two Cylinders. ICFD 2015, April 6-7, 2015, Orlando, USA.
14. A. Sedaghat, M. Assad, M. Gaith, K. Khanafer, R. Al-Wakid and M. Bani-Hani, Open pipe and nozzle external flows in drifted wind turbines. International Conference on Green Energy & Expo, September 21-23, 2015, Orlando, USA.

#### **Books**

1. **M. Assad**, Performance Characteristics of Thermal Cycles and Energy Conversion Systems. *Acta Polytechnica Scandinavica*, Mechanical Engineering Series No. 130, 1998.
2. Markku Lampinen, **M. Assad** and V. Kotiaho. Heat Transfer, Helsinki University of Technology, No. 155, 2008.
3. Markku Lampinen, **M. Assad**, V. Kotiaho, Kari Saari and Ralf Wiksten. Technical Thermodynamics, Helsinki University of Technology, No. 158, 2009.

#### **TECHNICAL REPORTS**

- 1- **M. Assad** and T. Noponen, Performance characteristics of porous air electrodes, Helsinki University of Technology, No. 82 (1995).
- 2- M. Hongisto, M. J. Lampinen and **M. Assad**, Evaporation of Isopropyl alcohol from a Printing unit, Helsinki University of Technology, No.103 (1997).
- 3- **M. Assad**, M. J. Lampinen and R. Tiainen, Thermodynamic Analysis of Nitric Acid Production Plant, Helsinki University of Technology (1998).
- 4- **M. Assad** and M. J. Lampinen, Mathematical modelling of liquid film evaporation process. Helsinki University of Technology (1999).

- 5- **M. Assad** and M. J. Lampinen, Film condensation between two parallel plates. Helsinki University of Technology (2000).
- 6- **M. Assad**, Markku J. Lampinen and R. Wiksten, On the development of absorption heat cycle: heat pump and heat transformer, Helsinki University of Technology (2000).
- 7- **M. Assad** and Markku J. Lampinen, Analysis of water hammer: basic equations and applications, Helsinki University of Technology, No. 134 (2002).
- 8- **M. Assad** and Ari Seppälä, Equations and preliminary results for optimization of a hollow fiber osmosis power plant. Salinity Power Project, European Union, 2003 (confidential).

### **EXPERIENCE**

1994-2014: working as research scientist at Aalto University (Finland)

2006-2014: working as docent at Aalto University (Finland)

2014-2015: Associate professor at Australian College of Kuwait

2014-2015: Head of Mechanical Engineering Department

### **AWARDS**

Aalto University: Teacher of the year 2011 prize

<http://eng.aalto.fi/en/current/news/view/2012-04-04/>

### **COURSES TAUGHT**

Classical thermodynamics, chemical thermodynamics, technical thermodynamics, irreversible thermodynamics, heat transfer, wind energy, solar energy, fluid mechanics and mass transfer.

### **PRESENT RESEARCH**

Wind turbines, heat exchangers, geothermal power plants

### **RESEARCH INTERESTS**

Renewable energy, energy efficiency, energy and exergy analysis, evaporative cooling, energy conversion systems and industrial ventilation.