

CURRICULUM VITAE

NAME: Ahmed Said Al-Salaymeh

POSITION: Director of Energy Center

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NATIONALITY: Jordanian Citizen

DATE OF BIRTH: 16/04/1970

MARITAL STATUS: Married.



SYNOPSIS:

Director of Energy Center at the University of Jordan. An associate professor at the Mechanical Engineering Department, Faculty of Engineering and Technology, University of Jordan, Amman-Jordan. A Ph.D. degree from the Institute of Fluid Mechanics, Friedrich Alexander Universität Erlangen-Nürnberg, Erlangen-Germany in April 2001. M.Sc and B.Sc degrees with honor from Mechanical Engineering Department at the University of Jordan. Having special interest in Fluid Mechanics, Turbulence Flow, Two-Phase Flow, MEMS, Micropumps, Energy, Energy Efficiency, Renewable Energy such as Solar Energy, Wind Energy and Biomass. Also, Dr. Al-Salaymeh has a good research in the area of Thermal flow Sensors (Patent registered in Germany), Flow-Measurement Techniques such as Hot-Wire Anemometer (HWA) and Laser-Doppler Anemometer (LDA), and Turbulence Phenomena. Having many papers in the international Journals and an active in participating in many scientific conferences. Currently, Dr. Al-Salaymeh is an assessor for Jordan Accreditation System (JAS). During the summers of 2002-2009, Dr. Al-Salaymeh was invited by the Institute of Fluid Mechanics, Friedrich Alexander Universität Erlangen-Nürnberg, Germany, the Institute of Fluid Mechanics, Technische Universität Hamburg-Harburg, Germany, Institute for Microtechnology, Technical University of Braunschweig, Germany, Institute for Aerodynamic und Gasdynamic, University of Stuttgart, where scientific research in fluid mechanics and instrumentation was conducted. Currently, Dr. Al-Salaymeh is very active in the field of Renewable Energy, Energy Efficiency and Water

management. He participated in many national and international workshops in the field of the Solar Energy, Photovoltaic, Biomass and Bio fuel in addition to the water management.

Dr. Al-Salaymeh is a guest editor for Energy Conversion and Management Journal. He is also a reviewer for many international Journals. Dr. Al-Salaymeh organized and participated in many workshops, seminars and conferences. In April 2009, Dr. Al-Salaymeh organized the Global Conference for Renewable Energy and Energy Efficiency for Desert Regions GCREEDER 2009. Dr. Al-Salaymeh was the chairman of the organizing committee. Also, Dr. Al-Salaymeh was the chairman of the organizing committee for the first German-Jordanian Winter Academy in the field of Combustion and Fluid Mechanics which was held in Amman-Jordan in February 2006. He was also the chairman of the organizing committee in the first German-Jordanian Workshop on Combustion and Oil Shale which was held in Amman at February 2008. Dr. Al-Salaymeh was also the chairman of the second German-Jordanian Workshop on Energy and Alternative Fuel which was held in Amman at October 2009. He organized also many activities in the field of Energy, Renewable Energy and Green building. Recently, Dr. Al-Salaymeh organized Greening Prospects workshop in July 2009. He organized also an international workshop in the field of utilizing the Renewable Energy Technology in Architectural Design during November 2009.

Dr. Al-Salaymeh is also an expert in the Field of Energy Regulation. He taught Energy Regulation course under the frame of the master program of Regulation and Competition in cooperation with the college of Europe. Dr. Al-Salaymeh attended many courses and training sessions in the field of Energy Regulation.

In 2009, Dr. Al-Salaymeh participated in many conferences and workshops in the field of renewable energy such as: the 12th German-Arab Business Forum (Renewable Energy Sector) in Berlin during June 2009. Also, he participated in the workshop: Solar Cooling Technology in the Mashriq-Region-Technical which was held in Damascus during July 2009. He participated in the workshop: Energy Efficiency: Strategic Agenda for Government and Industrial Aspects and Feasibility in the Region which was held in Amman during November 2009. Dr. Al-Salaymeh visited Italy in October 2009 and participated in Workshop which entitles Alternative Response Actions to Climate Change and Energy Options. In January 2009, Dr. Al-Salaymeh attended an intensive training course in Berlin, Germany entitles: Solar Geothermal, Renewables Academy AG (RENAC). During August and September of 2009, Dr. Al-Salaymeh was one member of the official Jordanian delegates who visited the Energy power plants in South Korea for a period of 3 weeks. He attended in South Korea a training program which entitles: Energy Planning and Development. Also, he participated in most of renewable energy and energy efficiency workshops and conferences which were organized in Jordan. Dr. Al-Salaymeh is a member in the Education Committee of the Jordan Green Building Council. Currently, Dr. Al-Salaymeh is working hard to establish a Master program in the field of Renewable Energy and Energy Efficiency in the Jordanian Universities. He published many scientific work in the field of feasibility and economic investigations of utilizing renewable energy sources in Jordan. Also, he supervised many B.Sc, M.Sc. and Ph.D. students who conducted their research in the field of renewable energy.

EDUCATION & EMPLOYMENT HISTORY:

- Sep. 08 –Present:** Director of Energy Center, University of Jordan, Amman, Jordan.
Associate Professor, Department of Mechanical Engineering, University of Jordan, Amman, Jordan.
- Sep. 07 – Sep. 08:** Associate Professor, School of Technological Sciences, German Jordanian University, Amman, Jordan.
- Sep. 06 –Sep. 07:** Associate Professor, Department of Mechanical Engineering, University of Jordan, Amman, Jordan.
- Sep. 01 – Sep. 06:** Assistant Professor, Department of Mechanical Engineering, University of Jordan, Amman, Jordan.
- June 09 – Sep. 09:** A scientific researcher at the Institute of Fluid Mechanics, FAU Erlangen - Nürnberg, Germany.
- June 08 – Sep. 08:** A scientific researcher at the Institute of Fluid Mechanics, FAU Erlangen - Nürnberg, Germany.
- June 07 – Sep. 07:** A scientific researcher at the Institute of Aerodynamic and Gasdynamic, Stuttgart University, Germany.
- June 06 – Sep. 06:** A scientific researcher at the Institute of Fluid Mechanics, FAU Erlangen - Nürnberg, Germany.
- June 05 – Sep. 05:** A scientific researcher at the Institute of Fluid Mechanics, TU Hamburg-Harburg & TU-Braunschweig, Germany
- June 04 – Sep. 04:** A scientific researcher at the Institute of Fluid Mechanics, FAU Erlangen - Nürnberg, Germany.
- June 03 – Sep. 03:** A scientific researcher at the Institute of Fluid Mechanics, FAU Erlangen - Nürnberg, Germany.
- Sep. 02: - Sep. 02** A scientific researcher at the Institute of Fluid Mechanics, FAU Erlangen – Nürnberg, Germany.
- May 01 – Aug. 01:** A scientific researcher at the Institute of Fluid Mechanics, FAU Erlangen – Nürnberg, Germany.
- Oct. 97 – April 01:** Researcher, Teacher Assistant and A Ph.D. student at the Institute of Fluid Mechanics, FAU Erlangen-Nürnberg, Erlangen, Germany.
Ph.D. Thesis: Flow Velocity and Volume Flow Rate Sensors with a Wide Band Width
- April 97 – Sep. 97:** Visiting an intensive course learning German language at Goethe Institute Bremen, Germany.
- Sep.95- April97:** Full Time Lecturer, Department of Mechanical Engineering, University of Jordan, Amman, Jordan.
- June 95 – Sep. 95:** Mechanical Engineer at Petra Company for Engineering Industrials, (Air Conditioning Company), Jordan.

- Sep. 93 – June 95:** **M.Sc.** Student, Part Time Lecturer and Teacher Assistant, Department of Mechanical Engineering, University of Jordan.
M.Sc. Thesis: Experimental Study of Heat Transfer Enhancement in Electronic Modules.
- June 93 – Aug. 93:** Mechanical Engineer at Petra Company for Engineering Industrials (Air Conditioning Company), Jordan.
- Feb. 93 - June 93:** Teacher Assistant, Department of Mechanical Engineering, University of Jordan, Amman, Jordan.
- July 92 – Sep. 92:** Summer Training In Tunisia
- Sep. 88 – Jan. 93:** **B.Sc.** in Mechanical Engineering, University of Jordan, Amman.
Graduate Project: Utilization of Solar Energy for Preheating of Fuel Oil for Industrial Usages.
- Sep. 85 – June 88:** Secondary school, Scientific Division (Zarka–Jordan)
- July 1988:** General Secondary Examination (Tawjihi), (Zarka–Jordan)
Percentage average (**92.9%**)
- July 85:** General Acceptance Examination, (Zarka–Jordan)
Percentage average (**99.3%**)
- Sep. 82 – June 85:** Preparatory school (Zarka–Jordan)
- Sep. 76 - June 82:** Primary school (Zarka–Jordan)

PUBLICATIONS

I. Refereed Journals

1. Song, K., **Al-Salaymeh, A.**, Jovanovic, J., Rauh, C., and Delgado, A., (2010). Experimental in-situ investigations of turbulence under high pressure, *accepted for publication in the Journal: Annals of the New York Academy of Science, vol. High-Pressure Bioscience and Biotechnology.*
2. **Al-Salaymeh, A.**, Al-Rawabdeh, I. and Emran, S. (2010). Economical Investigation of an Integrated Boiler-Solar Energy Saving System in Jordan, *Energy Conversion and Management Journal*, vol. xx, pp. xx-xx, published online.
3. Bakry, Ayman., **Al-Salaymeh, A.**, Al-Muhtaseb, Ala H., Abu-Jrai, A., Trimis, D., and Durst, F. (2010). Low-Emissions Premixed Porous Inert Media (PIM) Burner System Fuelled with Vegetable (Rapeseed) Oil Using Flow Velocity Flame Stabilization Technique, *Energy and Fuels*, Vol. 24, pp. 288–294.
4. **Al-Salaymeh, A.**, Al-Hamamre, Z., Sharaf, Firas, and Abdelkader, M. R. (2010). Technical and Economical Assessment of the Utilization of Photovoltaic Systems

- in Residential Buildings: The Case of Jordan, *Energy Conversion and Management Journal*, vol. xx, pp. xx-xx, published online.
5. Badran, O., **Al-Salaymeh, A.**, El-Tous, Y. and Abdala, W. (2010). Design and Testing of an Innovative Solar Radiation Measurement Device, *Energy Conversion and Management Journal*, vol. xx, pp. xx-xx, published online.
 6. **Al-Salaymeh, A.**, Zgoul, M., Khalidi, H. and Habali, S. (2010). Wind-energy augmentation using the delta-wing vortex, *accepted for publication in DIRASAT*.
 7. Hassouneh, K., Alshboul, A. and **Al-Salaymeh, A.** (2010). Influence of Windows on the Energy Balance of Apartment Buildings in Amman, *Energy Conversion and Management Journal*, vol. xx, pp. xx-xx, published online.
 8. **Al-Salaymeh, A.**, and Abdelkader, M. R. (2010). Efficiency of Free Cooling Technique in Air Refrigeration System, *Accepted for publication in Jordan Journal of Mechanical and Industrial Engineering*.
 9. Kilani, M. I., Al-Halhouli, A. T., Galambos, P. C., Haik, Y. S., **Al-Salaymeh, A.** and Üttgenbach, S. (2009). Development of a Surface Micromachined On-Chip Flat Disk Micropump, *Sensors & Transducers Journal* Vol. 107, Issue 8, pp. 64-76.
 10. **Al-Salaymeh, A.**, and Bayoumi, O. A. (2009). Investigations of Tripping Effect on the Friction Factor in Turbulent Pipe Flows, *ASME: J. Fluid Engineering*, Vol. 131, July 2009, pp. 1-11.
 11. Durst, F., Haddad, K. **Al-Salaymeh, A.**, Eid, S, Ünsal1, B. (2008), Mass Flow-Rate Control Unit to Calibrate Hot-Wire Sensors, *International Journal of Experiments in Fluid*, Vol. 44, pp. 189–197.
 12. Al-Halhouli, A. T., Kilani, M. I., **Al-Salaymeh, A.**, and Büttgenbach, S. (2008). The Spiral Channel Viscous Micropump. *Dirasat*, Vo. 35(2), pp. 120-128.
 13. Al-Halhouli, A.T., Demming, S., Feldmann, M., Büttgenbach, S., Kilani, M. I., and **Al-Salaymeh, A.** (2008), Performance Characterization of a Miniature Spiral-Channel Viscous Pump, *Sensors and Actuators A*, Vol. 142, pp. 256-262.
 14. Zanoun, E. S., Bayoumi, O. A., Durst, F., and **Al-Salaymeh, A.** (2007). Wall Skin Friction and Mean Velocity Profiles of Fully Developed Turbulent Pipe Flows, *Int. Journal of Experimental Thermal Fluid Science*, Vol. 32, pp. 249-261.

15. Al Rabadi, S., Friedel, L. and **Al-Salaymeh, A. (2007)**. Mean Droplet Size and Local Velocity in Horizontal Isothermal Free Jets of Air and Water, respectively, Viscous Liquid in Quiescent Ambient Air, *Chem. Eng. Technol.*, 2007, 30, No. 1, 71–83

16. **Al-Salaymeh, A.**, Al_Tarawneh, R. and Popovic, D. (2007), Neural Network Training by Modified Genetic Algorithms and its Application in Modeling the Global Solar Radiation in Amman, *Int. J. of Engineering Simulation (IJES)*, Vol. 8, No. 1, pp. 28-35.

17. **Al-Salaymeh, Ahmed** and Ashhab, "Moh'd Sami" (2007), Modeling of the Wall Friction Coefficient for Turbulent Flow in Smooth Pipe With Neural Nets, *Int. Journal of Heat and Technology*, Vol. 25, n. 1, pp. 151-156.

18. Al-Halhouli, A. T., **Al-Salaymeh, A.**, Kilani, M. I. and Büttgenbach, S. (2007), Numerical Investigation of the Effect of Spiral Curvature on the Flow Field in a Spiral-Channel Viscous Micropump, *Journal of Microfluidics And Nanofluidics*, Vol. 3(5), pp. 537-546.

19. Kilani, M. I. and **Al-Salaymeh, A. (2007)**, Simple Analytical Expressions the Flow Performance of the Spiral-Channel Viscous Micropump. *International Journal of Fluid Dynamics Research*, Vol. 39, Issue 8, pp. 632-646.

20. Al-Halhouli, A. T., Kilani, M. I., **Al-Salaymeh, A.**, and Büttgenbach, S. (2007). Investigation of the Influence of Design Parameters on the Flow Performance of Single and Double Disk Viscous Micropumps, *Int. Journal of Microsystem Technologies*, Vol. 13 (7), pp. 677-687.

21. Hamdan, M. N., Abuzeid, Osama and **Al-Salaymeh, Ahmed (2007)**, Assessment of an Edge Type Settlement of Above Ground Liquid Storage Tanks Using a Simple Beam Model, *Int. Journal of Applied Mathematical Modelling*, Vol. 31, Issue 11, pp. 2461-2474.

22. **Al-Salaymeh, Ahmed** and Ashhab, "Moh'd Sami" (2007), Modeling of the Response of a Hot-Wire Anemometer with Neural Nets under Various Air Densities, *Sensors & Transducers Journal*, Vol. 84, Issue 10, pp. 1590-1606.

23. **Al-Salaymeh, A. (2006)**, A General Model for the Prediction of Global Daily Solar Radiation on Horizontal Surfaces for Amman City, *Emirates Journal for Engineering Research (EJER)*, Vol. 11 (1), pp. 49 - 56.

24. Al-Halhouli, A. T., Kilani, M. I., **Al-Salaymeh, A.** and Büttgenbach, S. (2006), Influence of Geometrical Design Parameters on the Flow Performance of a Spiral Channel Viscous Micropump, *WSEAS Transactions on Fluid Mechanics*, Vol. 1 (6), 2006, pp. 601-606.

25. **Al-Salaymeh, Ahmed** and Ashhab, "Moh'd Sami" (2006), Modelling of A Novel Hot-Wire Thermal Flow Sensor with Neural Nets under Different Operating Conditions, *Sensors and Actuators A* Vol. 126, Issue 1 (2006), pp. 7-14.

26. Kilani, M. I., **Al-Salaymeh, A.** and Al-Halhouli, A. T. (2006), Effect of Channel Aspect Ratio on the Flow Performance of a Spiral-Channel Viscous Micropump. *ASME: J. Fluid Engineering*, Vol. 128(1), pp. 618 – 627, (2006).

27. Ashhab, “Moh’d Sami” and **Al-Salaymeh, Ahmed** (2006), Optimization of Hot-Wire Thermal Flow Sensor Based on A Neural Net Model, *Applied Thermal Engineering*, Vol. 26, Issue 8-9, (2006) 948–955.

28. **Al-Salaymeh, A.** (2005), Aspect Ratio Effects on the Conductive Heat Transfer of a Single-Heated Wire Sensor, *IASME Transactions*, Issue 8, Vol. 2, 2005, pp. 1360-1371.

29. Tashtoush, B., Duwairi, H. M. and **Al-Salaymeh, A.** (2005), Hydromagnetic Flow on a Power Law Stretching Surface with Suction and Injection of Non-Newtonian Fluid, *Int. Journal of Heat and Technology*, Vol. 23, n. 1, pp. 55-60, 2005.

30. **Al-Salaymeh, A.** (2005), On the Convective Heat Transfer from Circular Cylinders with Applications to Hot-Wire Anemometry, *Int. Journal of Heat and Technology*, Vol. 23, n. 2, 2005.

31. **Al-Salaymeh, A.**, Rabah, M., and Alhusein, M. (2005), Experimental Investigations of the Influence of the Working Fluids on the Performance of A Closed, Two- Phase Horizontal Thermosyphon, *Int. Journal of Heat and Technology*, Vol. 23, n. 2, 2005.

32. **Al-Salaymeh, A. S.** and Badran, O. O. (2005), The Influence of Inlet and Outlet Grilles on the Flow Characteristics of Axial Fans, *DIRASAT*, Vol. 32, n. 2, 2005.

33. **Al-Salaymeh, A.** and Durst, F. (2004), Development and Testing of a Novel Single-Wire Sensor for Wide Range Flow Velocity Measurements, *Meas. Sci. Technol.* 15, pp. 777-788, 2004.

34. **Al-Salaymeh, A.**, Jovanovic, J. and Durst, F. (2004), Bi-Directional Flow Sensor with a Wide Bandwidth for Medical Applications, *Int. J. Medical Engineering and Physics*, 26, pp. 623-637, 2004.
35. Durst, F., **Al-Salaymeh, A.**, Bradshaw, P. and Jovanovic, J. (2003), The Development of a Pulsed-Wire Probe for Measuring Flow Velocity with a Wide Bandwidth, *Int. J. of Heat and Fluid Flow*, 24, pp. 1-13, 2003.
36. **Al-Salaymeh, A.**, Alhussein, M. and Durst, F. (2003), Development of a two-wire Thermal Flow Sensor for industrial applications, *Int. J. of Quality in Maintenance Engineering*, 9(2), pp. 113-131, 2003.
37. Durst, F., **Al-Salaymeh, A.** and Jovanovic, J. (2001), Theoretical and Experimental Investigations of a Wide Range Thermal Velocity Sensor, *Meas. Sci. Technol.* 12, pp. 223-237, 2001.
38. Jubran, B. A. and **Al-Salaymeh, A. S.** (1999), Thermal Wakes Measurements in Electronic Modules in the Presence of Heat Transfer Enhancement Devices, *Journal of Applied Thermal Engineering*, Vol. 19, no. 10, pp. 1081-1096, 1999.
39. Jubran, B. A. and **Al-Salaymeh, A. S.** (1996), Heat Transfer Enhancement in Electronic Modules Using Ribs and “Film-Cooling-Like” Techniques. *Int. J. Heat and Fluid Flow* 17, pp. 148-154, 1996.

II. International Conferences:

1. Al-Qudah, K., Badran, O., and **Al-Salaymeh, A.** (2010), Performance and Evaluation of Wind Pump under Jordanian Climate Conditions, *International Nuclear and Renewable Energy Conference (INREC'10)*, March 21 - 24, 2010, Amman, Jordan.
2. Al-Salaymeh, M., and **Al-Salaymeh, A.** (2010), Utilization of PV Solar Generators for OFF Grid Mobile Sites in Jordan, *International Engineering Conference on Hot and Arid Regions (IECHAR 2010)*, March 1-2, 2010, King Faisal University, Al-Ahsa, Kingdom of Saudi Arabia.
3. Abdelkader, M.R., **Al-Salaymeh, A.**, Al-Hamamre, Z., and Sharaf, Firas (2010), Performance Test of Different PV Modules at Jordan Climate Conditions, *International Engineering Conference on Hot and Arid Regions (IECHAR 2010)*, March 1-2, 2010, King Faisal University, Al-Ahsa, Kingdom of Saudi Arabia.

4. Hassouneh, K., AlShboul, A., and **Al-Salaymeh, A. (2010)**, Energy Rating Windows for Residential Building, *International Engineering Conference on Hot and Arid Regions (IECHAR 2010)*, March 1-2, 2010, King Faisal University, Al-Ahsa, Kingdom of Saudi Arabia.
5. **Al-Salaymeh, A. (2010)**, The Assessment of the Effects of Privatization and Regulation of the Water Sector in Jordan, *International Conference of Regulation and Competition Policy for Development*, January 27-28, 2010, University of Jordan, Amman, Jordan.
6. K. Song, Y. Han, **A. Al-Salaymeh**, J. Jovanovic, C. Rauh, A. Delgado (2009), In-situ investigation of turbulent fluid flow under high pressure conditions by means of Laser Doppler Anemometry and numerical simulation, *GALA Conference: Lasermethoden in der Stroemungsmesstechnik*, 8.-10. September 2009, Erlangen, Germany.
7. **Al-Salaymeh, A.**, Abdelkader, M.R., and Al-Salaymeh, M. (2008), Enhancement of the Coefficient of Performance in Air Refrigeration System by Utilizing Free Cooling Technique, *Fourth International Conference on Energy Research & Development*, 17-19 November, 2008, Kuwait.
8. **Al-Salaymeh, A.**, and Al-Salaymeh, M. (2008), The Environmental Impact and the Economical Feasibility of Disi-Amman Water Conveyor Project, *The 3rd International Conference on Water Resources and Arid Environments (2008) and the 1st Arab Water Forum*, Riyadh, Kingdom of Saudi Arabia, 16 - 19 November, 2008.
9. Kilani, M. I., Al-Halhouli, A. T., Galambos, Paul C. and **A. S. Al-Salaymeh**, (2007), Design and Testing of a Surface Micromachined On-Chip Flat Disk Micropump, *The 6th Jordanian International Mechanical Engineering Conference (JIMEC'06)*, 22 - 24 October 2007, Amman – Jordan.
10. Amayrah, M. I. , **Al-Salaymeh, A.**, Kilani, M., and Al-Halhouli, A.T. (2007), Numerical Prediction of a Bi-Directional Micro Hot Wire Anemometer Using Three Parallel Wires, *Proceedings of the Third International Conference on Thermal Engineering: Theory and Applications*, May 21-23, 2007, Amman, Jordan.
11. **Al-Salaymeh, A.**, Zurigat, Y. (2006). A Comprehensive Study of Greenhouse for Agriculture and Water Desalination for Jordan Valley and Red-Dead Sea Region. *The 2nd International Conference on Water Resources and Arid Environment*, Riyadh, Kingdom of Saudi Arabia, 26 - 29 November, 2006.

12. Al-Halhouli, A.T., Kilani, M. I., Amayreh, M., **Al-Salaymeh, A.**, and Büttgenbach, S. (2006), Parametric Study of Single Disk Viscous Micropump, *Proceedings of the International Conference on Bio-Nanotechnology: Future Prospects in the Emirates*, November 18-21, 2006, Al Ain, United Arab Emirates.
13. Kilani, M. I., Al-Halhouli, A.T., **Al-Salaymeh, A.**, and Büttgenbach, S. (2006), Viscous Micropumps – A review, *Proceedings of the International Conference on Bio-Nanotechnology: Future Prospects in the Emirates*, November 18-21, 2006, Al Ain, United Arab Emirates.
14. Al-Halhouli, A.T., Kilani, M.I., **Al-Salaymeh, A.**, and Büttgenbach, S. (2006). Effect of Aspect Ratio on the Performance of Spiral-Channel Viscous Micropump, APS, *59rd Annual Meeting of the Division of Fluid Dynamics*, November 19-21, 2006, Tampa Bay, Florida USA, (Bulletin of the American Physical Society, 2006).
15. **Al-Salaymeh, A.**, Al-Halhouli A.T., Kilani, M.I., and Büttgenbach, S. (2006). Effect of Aspect Ratio on the Performance of Spiral-Channel Viscous Micropump, APS, *59rd Annual Meeting of the Division of Fluid Dynamics*, November 19-21, 2006, Tampa Bay, Florida USA, (Bulletin of the American Physical Society, 2006).
16. Al-Halhouli, A.T., Demming, S., Feldmann, M., Büttgenbach, S., Kilani, M. I., and **Al-Salaymeh, A.** (2006), Spiral-Channel Viscous Micropump- Experimental And Numerical Investigations, *Proceedings of the Euroensors*, Göteborg/Sweden, 17-20 Sept.06.
17. Al-Halhouli, A. T., Kilani, M. I., **Al-Salaymeh, A.**, and Büttgenbach, S. (2006). Effect of mean radius to channel width ratio on the flow performance of Spiral Channel Viscous Micropump. *The 4th WSEAS International Conference on Fluid Mechanics and Aerodynamics*, August 21-23, 2006, Elounda, Agios Nikolaos, Crete Island, Greece.
18. **Al-Salaymeh, A.**, Al-Salaymeh, M., Rabah, M., and Abdelkader, M. (2006), Enhancement of the Coefficient of Performance in Air Conditioning Systems by Utilizing Free Cooling, *Proceedings of the 2nd International Conference on Thermal Engineering Theory and Applications*, January 3 - 6, 2006, Al-Ain, United Arab Emirates
19. Al-Halhouli, A. T., **Al-Salaymeh, A.**, and Kilani, M. I. (2006), Numerical Simulations of the Flow Field in a Spiral-Channel Micropump, *Proceedings of the 2nd International Conference on Thermal Engineering Theory and Applications*, January 3 - 6, 2006, Al-Ain, United Arab Emirates
20. Al Rabadi, S., **Al Salaymeh, A.**, and Friedel, L. (2005), Measurement of the local mean droplet size in horizontal, isothermal air/ water and air/viscous liquid free jets

- in quiescent ambient, *APS, 58th Annual Meeting of the Division of Fluid Dynamics*, November 20-22, 2005, Chicago, Illinois, (Bulletin of the American Physical Society, Vol. 50, no. 9, 2005).
21. Kilani, M.I., **Al-Salaymeh, A.**, Al-Halhouli, A.T., and Gad-el-Hak, M. (2005) "Effect of Aspect Ratio on the Performance of Spiral-Channel Viscous Micropump," *APS, 58th Annual Meeting of the Division of Fluid Dynamics*, November 20-22, 2005, Chicago, Illinois, (Bulletin of the American Physical Society, Vol. 50, no. 9, pp. 273-274, 2005).
 22. **Al-Salaymeh, A.** (2005) "Convective Heat Transfer From Hot-Wire Anemometry," *Proceedings of the 3rd IASME / WSEAS Int. Conf. on Heat Transfer, Thermal Engineering and Environment*, Corfu Island, Greece, August 20-22, 2005 (pp183-188)
 23. **Al-Salaymeh, A.**, Rabah, M., and Alhusein, M. (2005), Experimental Investigations of a Closed, Two- Phase Horizontal Heat Pipe "Thermosyphon" under Different Conditions, *Proceedings of the 2nd International Exergy, Energy and Environment Symposium (IEEES2)*, KOS – GREECE, 3 - 7 July, 2005.
 24. **Al-Salaymeh, Ahmed** and Afaneh, Feras (2005), Experimental investigation of secondary ion emission from solid-state targets employing TOF method, *"Proceedings of the First Jordanian International Conference of Materials Science and Engineering*, April 12 – 14, 2005, Al-Balqa' Applied University, Al-Salt, Jordan.
 25. **Al-Salaymeh, Ahmed S.** and Duwairi, Hamzeh M. (2004), Thermal Radiation Effects on Boundary Layer of A Non-Newtonian Fluid With Suction or Injection Surface, *Proc. International Mechanical Engineering Conference, IMEC2004*, December 5-8, 2004, Kuwait.
 26. **Al-Salaymeh, A.**, Bayoumi, O.A., Durst, F., and Gad-el-Hak, M. (2004), Tripping Effect on the Friction Factor in Turbulent Pipe Flows, *APS, 57th Annual Meeting of the Division of Fluid Dynamics*, November 21-23, 2004, Seattle, Washington State, (Bulletin of the American Physical Society, Vol. 49, no. 9, p. 45, 2004).
 27. Hamdan, M., Abuzeid, O., and **Al-Salaymeh, A.** (2004), Beam Model for Analysis of Edge Type Settlement of Unanchored Liquid Storage Tanks, *Proc. 5th Jordanian International Mechanical Engineering Conference, JIMEC 2004*, April 26-28, 2004, Amman, Jordan, 1-11.
 28. **Al-Salaymeh, A.**, Durst, F., and Gad-el-Hak, M. (2001), Development and Characterization of a Thermal Flow Sensor with a Wide Bandwidth, 7th

International Congress on Fluid Dynamics and Propulsion, December 19-21, 2001, Cairo, Egypt.

29. **Al-Salaymeh, A.**, Durst, F., and Gad-el-Hak, M. (2001), A Single-Element, Thermal, Flow-Velocity Sensor with Wide Dynamic Range, APS, 54rd Annual Meeting of the Division of Fluid Mechanics, November 18-20, 2001, San Diego, California, (Bulletin of the American Physical Society, Vol. 46, no. 10, pp. 88–89, 2001).
30. Durst, F., and **Al-Salaymeh, A.** (2001), A Novel Single-Wire Sensor for Wide Range Flow Velocity Measurements, Sensor 2001, 8-10 May, 2001, Nürnberg, Germany.
31. **Al-Salaymeh, A.**, Durst, F., Bradshaw, P., and Gad-el-Hak, M. (2000), Development of a Thermal Flow Sensor with Wide Dynamic Range, APS, 53rd Annual Meeting of the Division of Fluid Mechanics, November 19-21, 2000, Washington, D.C., (Bulletin of the American Physical Society Vol. 45, no. 9, p. 141, 2000).
32. **Al-Salaymeh, A.** and Jubran, B. (1997), Different Methods of Heat Transfer Enhancement in Electronic Modules, Proceedings of the Second Jordanian Mechanical Engineering Conference, Amman - Jordan, June 1 - 5, 1997.
33. Zurigat, Y.H. and **Al-Salaymeh, A.S.** (1997), A Numerical Study of Stratified Solar Thermal Energy Storage, Proceedings of the Second International Engineering Conference, Al-Mansora, Egypt, April 8-10, pp. 225 249.
34. **Al-Salaymeh, A.** and Jubran, B. (1995), Experimental Study of Heat Transfer Enhancement in Electronic Modules, The First Jordanian Mechanical Engineering Conference, Amman - Jordan, June 25 - 28, 1995.

III. Under Publication:

1. Song, Kwonyul; Jovanovic, Jovan; **Al-Salaymeh, Ahmed**; Rauh, Cornelia; Delgado, Antonio (2009). Relaminarization of turbulence by high-pressure ramps, submitted to an Journal of Fluid Mechanics (JFM), (under review).
2. Shadi Eid, **Ahmed Al-Salaymeh**, Mohammad Hamdan, Kais Haddad, and Franz Durst (2009). Online measurements of thermophysical properties of ideal gas mixture in pipes, submitted to an International Journal, (under review).

3. Al-Qudah1, K., **Al-Salaymeh, A.**, and Al-Shannak, B. (2009). Experimental Investigation of Contraction Coefficient and Pressure Drop at Pipe Branching for Two-Phase Flow, *submitted to an International Journal*, (under review).
4. Ashhab, "Moh'd Sami" and Al-Salaymeh, Ahmed (2010), Air Flow Velocity Prediction By Inverting A Hot-Wire Anemometer Neural Net Model, *submitted to an International Journal*, (under review).

IV. Patents

1. Durst, F., **Al-Salaymeh, Ahmed** and Weber, Horst, (2001), Verfahren zur Messung der Strömungsgeschwindigkeit von Gasen, Germany, DE10009638A1.

Date of 1st publication of the application 13.09.2001,
 Citations DE 196 54 014 C1, WO 92 01 940 A1

V. Technical Reports:

1. **Al-Salaymeh, A. (2008)**, Turbulence Measurements at High Pressure Conditions, *Report on the DFG-HCST Supported Research Work*, Erlangen University, Institute of Fluid Mechanics, September, 2008.
2. **Al-Salaymeh, A. (2007)**, Initial Disturbance Spectra in a Laminar Boundary Layer at Zero Turbulence Level, *Report on the DFG-HCST Supported Research Visit to University of Stuttgart*, Institut of Aerodynamic und Gasdynamic, September, 2007.
3. **Al-Salaymeh, A. (2006)**, Fully Developed Laminar and Turbulent Pulsating Pipe Flows, *Report on the DAAD-Supported Research Work*, September, 2006.
4. Büttgenbach, S., Al Kilani, M., and **Al-Salaymeh, A. (2005)**, A Feasibility Study on a Miniature Electromagnetic Pump for Particle-Laden Fluids, *DFG/BMZ Proposal*, July, 2005.
5. **Al-Salaymeh, A. (2003)**, Investigations of Mean Flow Properties of Fully Developed, Plane, Turbulent Channel Flows, *Report on the DAAD-Supported Research Work*, September, 2003.
6. **Al-Salaymeh, A. (2003)**, Development of an intelligent Multi-Sensor Multi-Phase Flow Meter: "Cyclone Separation, *Progress Report*, Sultan Qaboos University, November 2003,
7. **Al-Salaymeh, A. (2002)**, Development of an intelligent Multi-Sensor Multi-Phase Flow Meter: Cyclone Separation, *Progress Report*, Sultan Qaboos, University, November 2002.

8. Durst, F., **Al-Salaymeh, A.**, Jovanovic, J., and Bradshaw, P. (2000), A Wide Range Thermal Velocity Sensor for Industrial Applications, *Final Report, LSTM 613/I*, July, 2000.
9. **Al-Salaymeh, A.** (2000), Methoden zur Messung von Strömungsgeschwindigkeit und Volumenstrom mit großem Dynamikbereich und deren technische Anwendung, II, *Progress DAAD Report*, March 2000.
10. **Al-Salaymeh, A.** (1999), Methoden zur Messung von Strömungsgeschwindigkeit und Volumenstrom mit großem Dynamikbereich und deren technische Anwendung, I, *Progress DAAD Report*, March 1999.

SHORT COURSES & WORKSHOPS:

- | | |
|---------------------------------|--|
| 12 - 17 October, 2009: | 2 nd German-Jordanian Workshop on on Energy and Alternative Fuel, Amman - Jordan. |
| 5 – 9 October, 2009: | Joint ICTP/IAEA Workshop on Alternative Response Actions to Climate Change and Energy Options, ICTP, Trieste, Italy |
| 20 Aug. – 04 Sep., 2009: | Energy Planning and Development Workshop, KOICA, South Korea. |
| 17 Aug. – 18 Aug. 2009: | Accreditation and Technical Assessment training workshop, Amman, Jordan. |
| 05 - 07 July, 2009: | Workshop on Solar Cooling Technology in the Mashriq-Region, Damascus, Syria. |
| 14 – 20 June, 2009: | International Workshop in Regulatory Impact Assessment (RIA), Brugges, Belgiume |
| 04 – 09 April, 2009: | Tempus meeting about curriculum development for teaching the environmental sciences and technology at Egyptian, Jordanian and Syrian Universities for Undergraduate and Graduate Students, Homos, Syria. |
| 14 – 18 February, 2009: | Curriculum Developemt for Energy Regualtion Course together with the College of Europe, Brugges, Belgiume |
| 26 – 30 January, 2009: | Solar Geothermal, Renewables Academy AG (RENAC), Berlin, Germany |
| 10 – 20 March, 2008: | International Workshop on Advanced Polymer Science and Turbulent Drag Reduction, Miramare - Trieste, Italy. |

- 19 - 23 Feb. 2008:** 1st German-Jordanian Workshop on Modern Experimental and Theoretical Methods in Fluid Mechanics, Combustion and Oil Shale, Amman - Jordan.
- 18 - 20 Nov. 2007:** Workshop “Availability and quality management of water in the MENA region”. Organized by Technische Universität München, Lehrstuhl und Versuchsanstalt für Wasserbau und Wasserwirtschaft.
- 20 -31 Aug. 2007:** Advanced Separation Technologies in Chemical Engineering 2008, Berlin, Germany.
- 27 Aug.– 10 Sep. 2006:** Training Workshop about Photovoltaic Systems, Freiberg and Dresden, Germany.
- 28 May – 01 June 2006:** A training Workshop about ISO/IEC 17025, Amman
- 03 -04 May 2006:** Accreditation and Technical Assessment Awareness, Amman
- 4 - 11 Feb. 2006:** 1st German-Jordanian Winter Academy in Fluid Mechanics and Combustion, Amman, Jordan.
- 20 - 24 Nov. 2005:** "4th Training Sessions in TEMPUS-FINSI Project: Curriculum for System Integration", Al-Husun Polytechnic College, Irbid, Jordan.
- 8 – 10 June 2005:** Laser Doppler Velocimetry (LDV) and Particle Image Velocimetry (PIV)", Ancona, Italy, June 2005.
- 2 - 7 May 2005:** "3rd Training Sessions in TEMPUS-FINSI Project: Curriculum for System Integration", HIAST, Damascus, Syria.
- 18 – 19 Feb. 2005:** “ABET Criterion 2000: General Perspective", Workshop conducted at the University of Jordan, Amman, Jordan.
- 23 May - 5 June 2004:** Summer School: Biomass as a renewable Energy, Goetingen and Bonn, Germany

- May – June 2003:** Teaching Methods (48 credit hours), University of Jordan, Amman, Jordan
- April – May 2003:** Engineering Drawing: Autocad (2D & 3D).
- 26 - 28 March 2001:** Workshop Lattice Boltzmann Methods, Theory and Applications in Fluid Mechanics, Erlangen, Germany.
- 9 – 11 October 2000:** Advanced Topics in Fluid Mechanics, Heat Transfer and Rheology, Erlangen, Germany.
- 18 - 20 October 1999:** Measurements in Turbulent Flows by Means of Hot Wire and Laser Doppler Anemometries, Erlangen, Germany.
- 26 - 29 April 1999:** Turbulence and Turbulence Modelling, Erlangen, Germany.
- 12 - 15 October 1998:** The Fundamentals of the Simillarity Theory and Model Transfer in Fluid Mechanics and Process Engineering, Erlangen, Germany.
- 20 - 23 April 1998 :** Numerical Fluid Mechanics, Erlangen, Germany.
- 23 - 26 March 1998:** Hot Wire and Laser Doppler Anemometries, Erlangen, Germany.
- 9 - 13 March 1998:** Introduction to Fluid Mechanics, Erlangen, Germany.

CONFERENCES, WORKSHOPS, AND MEETINGS ATTENDANCE:

1. The assessment of the effects of privatization and regulation of the water sector in Jordan, International Conference of Regulation and Competition Policy for Development, January 27-28, 2010, University of Jordan, Amman, Jordan.
2. Potential of Renewable Energy Utilization in Jordan and Southern Mediterranean Countries, International Conference and Exhibition on Green Energy & Sustainability for Arid Region & Mediterranean Countries (ICEGES 2009), November 10–12, 2009, Le Royal Hotel, Amman, Jordan
3. The organizer of the Energy Sector in the international of Integrating Renewable Energy in Architectural Design, November 19, 2009.

4. Energy Efficiency: Strategic Agenda for Government and Industry, November 9, 2009, Grand-Hayyat Amman, Jordan.
5. Utilization of Renewable Energy in Jordan, Energy Management and Sustainability conference, November 4-5, 2009, Yarmouk University, Irbid, Jordan.
6. The Chairman of the organizing committee for the Second German-Jordanian Workshop on Energy and Alternative Fuel, October 12 – 17, 2009, Amman - Jordan.
7. The Chairman and the organizer of the Energy Regulation Workshop, October 11, 2009, Amman - Jordan.
8. Joint ICTP/IAEA Workshop on Alternative Response Actions to Climate Change and Energy Options, October 5-9, 2009, ICTP, Trieste, Italy.
9. In-situ investigation of turbulent fluid flow under high pressure conditions by means of Laser Doppler Anemometry and numerical simulation, GALA Conference: Lasermethoden in der Strömungsmesstechnik, 8.-10. September 2009, Erlangen, Germany.
10. Energy Planning and Development Workshop, August 20 –September 04, 2009, KOICA, South Korea.
11. Accreditation and Technical Assessment Training Workshop, August 17 – 18, 2009, Amman, Jordan.
12. The organizer of Greening Prospects workshop, July 13-14, 2009, Amman, Jordan.
13. Workshop on Solar Cooling Technology in the Mashriq-Region - Technical Aspects and Feasibility in the Region, 5-7 July, Damascus, Syria.
14. Perspectives of Renewable Energy in Southern Mediterranean Countries, 12th German-Arab Business Forum, 24-26 June, 2009, Berlin, Germany.
15. International Workshop in Regulatory Impact Assessment (RIA), June 14 – 20, 2009, Bruges, Belgium
16. 12nd Economics of Infrastructures Conference, 14-15 May, 2009, TU-Delft, Delft, Nederland.
17. Curriculum Development for Teaching the Environmental Sciences and Technology at Egyptian, Jordanian and Syrian Universities for Undergraduate and Graduate Students (CDENST), Tempus project, April 4-9, 2009, Homos, Syria.
18. The chairman of the organizing committee for the Global Conference for Renewable Energy and Energy Efficiency for Desert Regions GCREEDER 2009, March 31st –April 2nd, 2009, Amman.

19. Curriculum Developemt for Energy Regualtion Course together with the College of Europe, February 14-18, 2009, Brugges, Belgiume
20. Enhancement of the Coefficient of Performance in Air Refrigeration System by Utilizing Free Cooling Technique, Fourth International Conference on Energy Research & Development, 17-19 November, 2008, Kuwait.
21. The Environmental Impact and the Economical Feasibility of Disi-Amman Water Conveyor Project, The 3rd International Conference on Water Resources and Arid Environments (2008) and the 1st Arab Water Forum, Riyadh, Kingdom of Saudi Arabia, 16 - 19 November, 2008.
22. Influence of Dimpled Surfaces on Drag Reduction in Turbulent Channel Flows, 22nd International Congress of Theoretical and Applied Mechanics (ICTAM2008), AUGUST 24 – 30, 2008, Adelaide, Australia
23. The Chirman of the organizing committee for the first German-Jordanian Workshop on Modern Experimental and Theoretical Methods in Fluid Mechanics, Combustion and Oil Shale, February 19 – 23, 2008, Amman - Jordan.
24. Design and Testing of a Surface Micromachined On-Chip Flat Disk Micropump, The 6th Jordanian International Mechanical Engineering Conference, 22-24 October 2007, Amman – Jordan.
25. Numerical Prediction of a Bi-Directional Micro Hot Wire Anemometer Using Three Parallel Wires, The Third International Conference on Thermal Engineering: Theory and Applications, May 21-23, 2007, Amman, Jordan.
26. A Member in the Organizing Committee of the third International Conference on Thermal Engineering Theory and Applications, May, 2007, Amman, Jordan.
27. Frountiers of Science and Engineering (FOSE07), March 19-21, 2007, Seville, Spain.
28. A Comprehensive Study of Greenhouse for Agriculture and Water Desalination for Jordan Valley and Red-Dead Sea Region. The 2nd International Conference on Water Resources and Arid Environment, Riyadh, Kingdom of Saudi Arabia, 26 - 29 November, 2006.
29. "Effect of Aspect Ratio on the Performance of Spiral-Channel Viscous Micropump" APS, 59rd Annual Meeting of the Division of Fluid Dynamics, November 19-21, 2006, Tampa Bay, Florida USA.
30. Viscous Micropumps – A review, International Conference on Bio-Nanotechnology: Future Prospects in the Emirates, November 18-21, 2006, Al Ain, United Arab Emirates
31. A member in the organizing committee for the First European-Middle East Summer School in Micor System and Mecatronics, August 2006, Brasunschweig, Germany.

32. Short course on " ISO/IEC 17025", Amman, Jordan, 28 May – 1 June 2006
33. Short course on "Accreditation and Technical Assessment Awareness", Amman, Jordan, 3 - 4 May 2006
34. The Chairman of the organizing committee for the first German-Jordanian Winter Academy in the field of Combustion and Fluid Mechanics, February 4 – 11, 2006, Amman - Jordan.
35. "Enhancement of the Coefficient of Performance in Air Conditioning Systems by Utilizing Free Cooling", *2nd International Conference on Thermal Engineering Theory and Applications*, January 3 - 6, 2006, Al-Ain, United Arab Emirates
36. "4th Training Sessions in TEMPUS-FINSI Project: Curriculum for System Integration", Al-Husun Polytechnic College, Irbid – Jordan, 20-24 November 2005.
37. Keynote Speaker, "Solar Energy and Its Applications", 1st Workshop on Renewable Energy Resources (FWRER-05), 8-10 November 2005, The Hashemite University, Zarqa, Jordan.
38. "On The Convective Heat Transfer From Circular Cylinders With Applications To Hot-Wire Anemometry," 3rd IASME / WSEAS Int. Conf. on Heat Transfer, Thermal Engineering and Environment, Corfu Island, Greece, August 20-22, 2005.
39. "Experimental Investigations of a Closed, Two- Phase Horizontal Heat Pipe "Thermosyphon" under Different Conditions," 2nd International Exergy, Energy and Environment Symposium (IEEES2), KOS – GREECE, 3 - 7 July, 2005.
40. "Short Course on Laser Doppler Velocimetry (LDV) and Particle Image Velocimetry (PIV)", Ancona, Italy, June 2005.
41. First Middle East International Conference on Advances in Civil, Mechanical and Material Engineering, University of Jordan, Amman, Jordan, May 10 – 13, 2005.
42. "3rd Training Sessions in TEMPUS-FINSI Project: Curriculum for System Integration", Higher Council for Applied Science and Technology (HIAST), Damascus, Syria, 2-7 May 2005.
43. "Experimental Investigations of the Friction Factor in Turbulent Pipe Flow", Seminar conducted at the Institute of Fluid Mechanics, TU Hamburg-Harburg, Germany, February, 2005.
44. "ABET Criterion 2000: General Perspective, Workshop conducted at the University of Jordan, Amman, Jordan, February, 2005.
45. CFX: Computational Fluid Dynamics, Workshop conducted at the University of Jordan, Amman, Jordan, February, 2005.

46. "Thermal Radiation Effects on Boundary Layer of A Non-Newtonian Fluid with Suction or Injection Surface," International Mechanical Engineering Conference, IMEC2004, December 5-8, 2004, Kuwait.
47. "Tripping Effect on the Friction Factor in Turbulent Pipe Flows", APS, 57th Annual Meeting of the Division of Fluid Dynamics, November 21-23, 2004, Seattle, Washington State, USA.
48. "Drag reduction by dimpled surfaces in plane channel flows", Seminar conducted at the Institute of Fluid Mechanics, FAU Erlangen - Nürnberg, Germany, August, 2004.
49. International Conference for Renewable Energies, Bonn, Germany, June 2004.
50. "A Preliminary Study of Greenhouse for Agriculture and Water Desalination for Jordan Valley", Seminar conducted at Summer School: Biomass as a renewable Energy, Goettingen and Bonn, Germany, June 2004.
51. "Beam Model for Analysis of Edge Type Settlement of Unanchored Liquid Storage Tanks," 5th Jordanian International Mechanical Engineering Conference, JIMEC 2004, April 26-28, 2004, Amman, Jordan.
52. Mechatronics Workshop, University of Jordan, Amman, Jordan, 2004.
53. Workshop about the Thermal Insulation in Buildings that organized by Engineering Association, Amman, Jordan, 2004.
54. Symposium on Frontiers of Science and Technology, Koc University, Istanbul, Turkey, September 21-23, 2003.
55. "Thermal Flow Sensor for Velocity and Volume Flow Rate Measurements" Seminar conducted at the Institute of Fluid Mechanics, FAU Erlangen - Nürnberg, Germany, August, 2003.
56. Workshop about Teaching Methods, University of Jordan, Amman, Jordan (48 credit hours), 2003.
57. "Medical Applications for Thermal Flow Sensor", Seminar conducted at the Institute of Fluid Mechanics, FAU Erlangen - Nürnberg, Germany, September, 2002.
58. "Development and Characterization of a Thermal Flow Sensor with a Wide Bandwidth," 7th International Congress on Fluid Dynamics and Propulsion, Cairo, Egypt, December 19-21, 2001.
59. "A Novel Single-Wire Sensor for Wide Range Flow Velocity Measurements," Sensor 2001, Nürnberg, Germany, 8-10 May, 2001.
60. Short course on "Lattice Boltzmann Methods, Theory and Applications in Fluid Mechanics", Erlangen, Germany, 26 - 28 March 2001.

61. "Development of a Thermal Flow Sensor with Wide Dynamic Range," APS, 53rd Annual Meeting of the Division of Fluid Mechanics, Washington, D.C., USA, November 19-21, 2000.
62. Short course on "Advanced Topics in Fluid Mechanics, Heat Transfer and Rheology", Erlangen, Germany, 9 – 11 October 2000.
63. Short course on "Measurements in Turbulent Flows by Means of Hot Wire and Laser Doppler Anemometries", Erlangen, Germany, 18 - 20 October 1999.
64. Short course on "Turbulence and Turbulence Modelling", Erlangen, Germany, 26 - 29 April 1999.
65. Short course on "The Fundamentals of the Similarity Theory and Model Transfer in Fluid Mechanics and Process Engineering", Erlangen, Germany, 12 - 15 October 1998.
66. Short course on "Numerical Fluid Mechanics", Erlangen, Germany, 20 - 23 April 1998.
67. Short course on "Hot Wire and Laser Doppler Anemometries", Erlangen, Germany, 23 - 26 March 1998.
68. Short course on "Introduction to Fluid Mechanics", Erlangen, Germany, 9 - 13 March 1998.
69. "Different Methods of Heat Transfer Enhancement in Electronic Modules," 2nd Jordanian Mechanical Engineering Conference, Amman - Jordan, June 1 - 5, 1997.
70. "A Numerical Study of Stratified Solar Thermal Energy Storage", The conference of science and technology, Aleppo (Syria), 2-7 November 1996.
71. "Experimental Study of Heat Transfer Enhancement in Electronic Modules," The First Jordanian Mechanical Engineering Conference, Amman - Jordan, June 25 - 28, 1995.

FUNDED RESEARCH

Principle Investigator or Co-investigator in the following funded projects

Project Title	Sponsor	Period of Project	Funds (JD)
Mobile Energy and Environment Clinic Program	Ministry of Higher Education and Scientific Research / Scientific Research Fund	Cuurent – March 2011	566,000
Supplying heat inside buildings and heating water systems using solar energy by adopting a new technology. Phase one	Ministry of Higher Education and Scientific Research / Scientific Research Fund	Current – March 2011	230,400
Development of a HiTAC-Flameless combustor of Diesel and Bio-diesel Fuels	Ministry of Higher Education and Scientific Research / Scientific Research Fund	Cuurent – Dec. 2010	150,000
Investigation of the Cool Flame behavior for Jojoba Oil	Deanship for Scientific research in the University of Jordan.	Feb. 2010 – Dec. 2011	26,500
The assessment of the effects of privatization and regulation of the water sector in Jordan	Support from European Union for Regulatory Reform and Privatisation in infrastructure	September 2009 – September 2010	2,500
Supercritical Extraction and Oil Recovery from Jordanian Oil Shale, Cooperation between Jordanian & and German partners	Submitted for fund	Curent	50,000
Direct Combustion of Ellajjun Oil Shale: Influence of Shale Particle Size on Sulfur Dioxide Emission,	Deanship for Scientific research in the University of Jordan.	2006 – Current	11,500
Solar System Design for Domestic Water, Pre-heating and Swimming Pool Applications	Faculty for Factory (FFF) project, Outreach center for industrial consultancy, University of Jordan	July 2009 - October 2009	3,500
Turbulence Measurements at High Pressure Conditions	Supported by DFG and LSTM-Erlangen, Erlangen, Germany	June 2008 – September 2008	8,400
Initial Disturbance Spectra in a Laminar Boundary Layer at Zero Turbulence Level	Supported by DFG and the University of Stuttgart, Germany.	June 2007 – September 2007	8,400

Development of a getle pump for fluids with stress sensitive microparticles	Arab Science and Technology Foundation, UAE,	September 2006- April 2008	35,000
Fully Developed Laminar and Turbulent Pulsating Pipe Flows	Supported by DFG and the University of Stuttgart, Germany.	June 2006 – September 2006	8,400
Fabrication and Analysis of Micro Pumps	Supported by DAAD and the Institute for Microtechnology, TU-Braunschweig, Germany.	August 2005 – 2007	Two years funded for my Ph.D. student
CFD simulation of a butterfly valve for vibration analysis and reduction	Center for Consultation and Strategic Studies, Saudia Arabia	Nov. 2005 – May 2006	2,300
Energy Saving System Project; Boiler-Solar-Electrical Integration System,	Faculty for Factory (FFF) project, Outreach center for industrial Consultancy, University of Jordan	June 2005 - September 2005	3,500
Dispersion of two-phase flow free jets	Supported by DFG and the Fluid Mechanics Department at Technical University Hamburg-Harburg, Germany.	February 2005 – September 2005	9,900
Drag reduction by dimpled surfaces in plane channel flows	Supported by DFG and LSTM-Erlangen, Erlangen, Germany	June 2004 – September 2004	8,400
Hot-Wire Equipment for Measurements laboratory at the faculty of Engineering and Technology, University of Jordan	a fund from German government	April 2004	20,000
Investigations of Mean Flow Properties of Fully Developed, Plane, Turbulent Channel Flows,	Supported by DAAD and LSTM-Erlangen, Erlangen, Germany	June 2003 – September 2003	6500
On the Convective Heat Transfer from Circular Cylinders at Low Reynolds Numbers with Applications to Hot-Wire Anemometry.	Deanship for Scientific research in the University of Jordan.	May 2002 – September 2005	4750
Development of an intelligent Multi-Sensor Multi-Phase Flow Meter, Consulting researcher	Supported by Sultan Qaboos University, Muscat, Sultanate of Oman,	September 2002- December 2003.	2000

PROFESSIONAL SOCIETIES MEMBERSHIPS AND ACTIVITIES:

- Director of Energy Center at the University of Jordan, Sep. 2008 – Current
- A guest editor for Energy Conversion and Management Journal, Elsevier.
- A session chairman in the International Conference and Exhibition on Green Energy & Sustainability for Arid Region & Mediterranean Countries (ICEGES 2009), November 10–12, 2009, Le Royal Hotel, Amman, Jordan
- An invited speaker in the panel discussion about Energy Efficiency: Strategic Agenda for Government and Industry, November 9, 2009, Grand-Hayyat Amman, Jordan.
- The organizer of the Energy Sector in the international of Integrating Renewable Energy in Architectural Design, November 19, 2009.
- The Chairman of the organizing committee for the Second German-Jordanian Workshop on Energy and Alternative Fuel, October 12 – 17, 2009, Amman - Jordan.
- The chairman and the organizer of the Energy Regulation Workshop, October 11, 2009, Amman - Jordan.
- A membership in the organizing committee of the International Energy Conference, September 2011, Jordan Engineering Association,
- A member in Panel discussion for DAAD scholarship holders on doctoral studies in Germany, Goethe Institute, Amman , Jordan, 2007, 2008 and 2009.
- A member in the official Jordanian delegate who visited South Korea and participated in the Energy Planning and Development Workshop, August 20 – September 04, 2009, KOICA, South Korea.
- The organizer of Greening Prospects workshop, July 13-14, 2009, Amman, Jordan.
- A Keynote speaker in 12th German-Arab Business Forum, 24-26 June, 2009, Berlin, Germany.
- The chairman of the organizing committee of the Global Conference for Renewable Energy and Energy Efficiency for Desert Regions (GCREEDER 2009), March 31st –April 2nd , 2009, Amman.
- The Chairman of the organizing committee for the first German-Jordanian Workshop on Modern Experimental and Theoretical Methods in Fluid Mechanics, Combustion and Oil Shale, February 19 – 23, 2008, Amman - Jordan.
- A member in the organizing committee of the third International Conference on Thermal Engineering: Theory and Applications, May 21-23, 2007, Amman, Jordan.

- A member in the organizing committee for the First European-Middle East Summer School in Micor System and Mecatronics, August 2006, Brasunschweig, Germany.
- The Chirman of the organizing committee for the first German-Jordanian Winter Academy in the field of Combustion and Fluid Mechanics, February 4 – 11, 2006, Amman - Jordan.
- A member in the TEMPUS-FINSI Project: Curriculum for System Integration", September 2005 – March 2007
- A member in the Education Committee of the Jordan Green Building Council.
- A member in the ABET committee at the Mechanical Engineering Department, University of Jordan.
- A member in different engineering committees of Jordan Institution for Standards and Metrology.
- An Assessor at the Jordanian Accreditation Unit.
- A member in the organizing committee of the Association for Jordanian Graduates from German Universities, Amman, 2005.
- A member in the consulting workshop about the establishing of German-Jordan University, Amman.
- A member in some committees at Jordan Institution for Standards and Metrology, Amman, Jordan.
- Membership in Jordan Engineering Association.
- A member in the organizing committee of First Middle East International Conference On Advances in Civil Mechanical and Material Engineering, 2005.
- A member in the organizing and scientific committee of 5th Jordanian International Mechanical Engineering Conference, JIMEC 2004.
- A member in Panel discussion for DAAD scholarship holders on doctoral studies in Germany, Goethe Institute, Amman , Jordan, 2004 and 2005.
- A Member of MSc. Theses examination committees (over 5 committees).
- Supervised/co-supervised over 20 final year B.Sc. projects, 6 M.Sc. and 4 Ph.D. students.
- Reviewed Articles for a number of leading International and Regional Journals such as: Dirasat, Applied Thermal Engineering, Measurement Science and

Technology, Sensors and Actuators, Energy Conversion and Management, ASME, and several local and international conferences.

- Reviewed several patents applications for the Ministry of Industry, Amman, Jordan.
- A research visit for Germany in summer 2003, 2004 and 2005.
- A member in the organizing committee of the Second Jordanian Mechanical Engineering Conference, Amman - Jordan, 1997.
- A member in the organizing committee of First Jordanian Mechanical Engineering Conference, Amman - Jordan, 1995.

HONORS AND AWARDS:

- 2009 KOICA award for a training visit in South Korea.
- 2009 DFG award for summer research visit in Germany.
- 2008 DFG award for summer research visit in Germany.
- 2007 DFG award for summer research visit in Germany.
- 2006 DAAD award for summer research visit in Germany.
- 2005 DFG award for summer research visit in Germany.
- 2005 EU award for attending short courses in Italy.
- 2004 APS/DFD award for participating in the annual meeting of the American Physical Society / Davison of Fluid Dynamics.
- 2004 DAAD award for participating in the renewable energy summer school, Germany.
- 2004 DFG award for summer research visit in Germany
- 2004 DAAD Certificate for Outstanding Researcher.
- 2003 DAAD award for summer research visit in Germany
- 1997 – 2001 DAAD scholarship for Ph.D. study in Germany.
- 1988 - 1993 Jordanian Ministry of high Education, Distinction Scholarship for undergraduate study.

LANGUAGES:

- Arabic (mother tongue)
- Fluent in both written & spoken English (TOFEL Score=570).
- Very good in both written & spoken German (German language examination PNdS or DSH (Pass))

INTERESTS:

- Reading, Traveling, Basketball, Volleyball, Football, Swimming, Music,...etc.

REFERENCES:

- 1) Prof. Dr. h.c. Franz Durst, Head of the Fluid Mechanics Institute (LSTM-Erlangen), FAU Erlangen - Nürnberg, Cauer Str. 4, D-91058 Erlangen, Germany, E-mail: durst@lstm.uni-erlangen.de
- 2) Prof. Mohamed Gad-el-Hak, Chair of Mechanical Engineering Engineering; Virginia Commonwealth University, VA 23284-3015, USA, E-mail: gadelhak@vcu.edu
- 3) Prof. Mohammad A. Hamdan, Dean of Faculty of Engineering, Al-Zaytona University, Amman, 11942 Jordan, Email: mashamdan@yahoo.com; mahamdan@ju.edu.jo
- 4) Prof. Mohammad A. Al-Saad, Mechanical Engineering Department, University of Jordan, Amman, 11942 Jordan, Email: maalsaad@ju.edu.jo

Certificates, Copies Will be Submitted Upon Request.