

Curriculum Vitae
Hasan Abdellatif Hasan
Professor



Present Address

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Personal Data

Born : January 23, 1961
Citizenship : Jordanian
Marital Status : Married
Number of Children : 3 (Farah 20 years, Maryam 17 years, Sama 9 year)
Languages : Arabic, English, Turkish, French

Education

1990 Ph.D. Chemical Engineering, McGill University, Montreal, Canada
Stability of Water in Oil Emulsions in Simple Shear Flow

1985 M.Sc. Chemical Engineering, Middle East Technical University, Ankara, Turkey
Application of Multiphase Theory to Filtration

1983 B.Sc. Chemical Engineering, Middle East Technical University, Ankara, Turkey

Research and Teaching Experience

2013–present Associate Professor, Petroleum and Chemical Engineering Department,
Sultan Qaboos University, Oman

2011-2013 Vice Dean of the Engineering College, Jordan University of Science and
Technology, Irbid, Jordan.

- 2006-present Professor, Department of Chemical Engineering, Jordan University of Science and Technology, Irbid, Jordan.
- 2001-2006 Associate Professor, Department of Chemical Engineering, Jordan University of Science and Technology, Irbid, Jordan.
- 2003-2005 Associate Professor, Department of Chemical Engineering, Qatar University, Doha, Qatar.
- 2001-2003 Chairman of the Department of Chemical Engineering, Jordan University of Science and Technology, Irbid, Jordan.
- 1991-2001 Assistant Professor, Department of Chemical Engineering, Jordan University of Science and Technology, Irbid, Jordan.
- 1998-1999 Leave from Jordan University of Science and Technology to University of Twente, Rheology Group, The Netherlands.

The research focuses on experimental and theoretical investigation of the coalescence efficiency of emulsion droplets in simple shear flow. The research was done in association with Shell (Amsterdam), Unilever research laboratory and the technical university of Eindhoven.

- 1990-1991 Postdoctoral fellow, Department of Chemical Engineering, McMaster University, Hamilton, Ontario, Canada.

The research focused on the fundamental aspects of deinking of recycled paper by flotation.

- 1985-1990 Research and teaching assistant, McGill University, Montreal, Canada.

- 1984-1985 Research and teaching assistant, Middle East Technical University, Turkey.

Taught Courses:

Undergraduate:

fluid mechanics, heat transfer, mass transfer, separation processes, unit operations, transport phenomena, industrial process chemistry, desalination, engineering economics, engineering skills and ethics, numerical analysis, applied mathematics, plant design and modeling for chemical engineers and equipment design, Heat Transfer Lab., Fluid Mechanics Lab, Unit Operation Labs.

Graduate Courses:

Colloid and surface science, transport phenomena, Oily water treatment, advanced mass transfer

M.Sc. Thesis:

Supervised several master students who worked on

- *waste paper recycling,*
- *deposition of solid particles on solid spheres in agitated vessels,*
- *microemulsions,*

- *emulsion stability,*
- *Solar desalination,*
- *waste water treatment,*
- *Biogas production from solid and sludge*
- *Solar Drying.*

Publications

1. **Hasan Mousa**, A. S. AL-Hobaib, M. S. Alsuhybani and Kh. M. AL-Sheetan, Performance of dodecane based reverse osmosis membranes modified with co solvent. Submitted to **Journal of Nanomaterials**.
2. A. S. AL-Hobaib, M. S. Alsuhybani and Kh. M. AL-Sheetan, and **Hasan Mousa**, Modification of a reverse osmosis membrane with co-solvents to improve performance. Submitted to **International Journal of Polymer Science**
3. Awni Al-Otoom, Fahmi Abu Al-Rub, **Hasan Mousa**, and Mays Shaded' "Continuous Solar Drying of Sludge from a Waste Water Treatment Plant", *accepted* in **Journal of Renewable and Sustainable Energy**.
4. **Hasan Mousa**, Ala'a H. Al-Muhtaseb and Mousa Abu Arabi, "Improving the productivity of a falling film solar unit", *accepted* in **Desalination and Water Treatment Journal**.
5. **Hasan Mousa** and Mohammad Al-Silwadi, Variation in methane concentration produced from anaerobically digested vegetables. Accepted in **The Engineering Research Journal**, Vol. 12, pp. 32-40, 2015.
6. Y. Salameh, A. Al-Muhtaseb, **H. Mousa**, G. M. Walker and M. N. M. Ahmad, "Characterization of Adsorption of Aqueous Arsenite and Arsenate Onto Charred Dolomite in Microcolumn Systems", **Environmental Technology**, Vol. 35, pp. 3029-3040, 2014.
7. **H. Mousa** and M. Abu Arabi, "Desalination and Hot Water Production Using Solar Still Enhanced by External Solar Collector, **Desalination and Water Treatment**, 51, 1296, 2013.
8. Kamal Al-Malah, **H. Mousa**, and Kawther Al-Reemawi, "Solubilization of Mefenamic Acid in Stable Micro-Emulsions Using Potassium Oleate, Tween-20, and Glycol", **Journal of Dispersion Science and Technology**, 32, 1509, 2011
9. Kamal Al-Malah, **H. Mousa** and Eihab Bani Hani, "Effect of Electrolytes on Formulation and Stability of Water/di-Ethyl Oxalate/Tween Micro-Emulsions", **Journal of Dispersion Science and Technology**, 32, 749, 2011.
10. Majdi Al-Mahasneh, **H. Mousa**, Heba Jalamneh, Isra Bani Hani and Meryam Zawahreh, "Evaluation of Calcium Content of Drinking Water Supplies and

- its Effect on calcium deficit in Jordan”, **Desalination and Water Treatment**, 21, 181, 2010.
11. **H. Mousa**, M. Abu-Arabi, M. Al-Naerat, R. Al-Bakkar, Y. and A. Khattab, “Solar desalination by indirect Heating”, **International Journal of Sustainable Water and Environmental Systems**, 1, 29, 2010.
 12. **H. Mousa** and M. Abu Arabi, “Theoretical Study of Water Desalination by a falling Film Solar Unit”, **Desalination and Water Treatment**, 12, 331, 2009.
 13. M. Abu Arabi, **H. Mousa** and R. Sameeh, “Solar Desalination Unit with Falling Film”, **Desalination and Water Treatment**, 3, 58, 2009.
 14. **H. Mousa** and S. Al-Hitmi, “Treatability of wastewater and membrane fouling”, **Desalination**, 217, 65, 2007.
 15. **H. Mousa**, “Investigation of UF membranes fouling by humic acid”, **Desalination**, 217, 38, 2007.
 16. **H. Mousa**, “Stability of Membrane Fouling Particles under Perikinetic and Orthokinetic Flow Conditions”, **Desalination**, 175, 209, 2004.
 17. H. Abu-Qdais and **H. Mousa**, “Removal of Heavy Metals from Wastewater by Membrane Processes: A Comparative Study”, **Desalination**, 164, 105, 2004.
 18. **H. Mousa**, M. Kandah and F. Abu-Al-Rub, “Removal of Copper, Lead and Cadmium Ions in a Fluidized Bed”, **Sep. Sci. Techn.**, 39, 1751, 2004.
 19. M. Azzam, **H. Mousa** and A. Al-Maqraei, “The Role of Particle Size in the Deposition Efficiency of Ink on Plastic Spheres”, **Colloids and Surfaces**, vol. 230, pp. 207-216, 2003.
 20. M. Al-Jabari, **H. Mousa** and I. Al-Khateeb, “Kinetics of Deposition of Carbon Particles on Plastic Spheres”, **Sep. Sci. Techn.**, 37(2), 431, 2002.
 21. **H. Mousa**, W. M. Agterof and J. Mellema, “Determination of the Orthokinetic Coalescence Efficiency of Droplets in Simple Shear Flow Using Mobile, Partially Mobile and Immobile Drainage Models and Trajectory Analysis”, **Trans IChemE**, 80, Part A, 345, 2002.
 22. **H. Mousa**, Deposition of Small Particles on Spherical Collectors Particles Under Turbulent Flow Conditions, **Sep. Sci. Techn.**, 37(9), 2021, 2002.
 23. Al-Malah, K. and **H. Mousa**, "Protein Adsorption Kinetics" in: Adsorption: Theory, Modeling, and Analysis (Editor Jozsef Toth), p. 847-870, **Marcel Dekker, Inc., New York, U.S.A., Print ISBN: 0-8247-0747-8 (2002)**.
 24. **H. Mousa**, M. Al-Jabari and I. Al-Khateeb, “Effect of Physicochemical and Hydrodynamic Conditions on Kinetics of Carbon Particles Deposition on Plastic Spheres”, **Chem. Eng. Journal**, 83, 79, 2001.

25. **H. Mousa**, W. M. Agterof and J. Mellema, "Experimental Investigation of the Orthokinetic Coalescence Efficiency of Droplets in Simple Shear Flow", *J. Coll. Int. Sci.*, 240(1), 340, 2001.
26. **Hasan Mousa**, Wim Agterof and Jorrit Mellema, "Theoretical and Experimental Investigation of the Coalescence Efficiency of Droplets in Simple Shear Flow", *Progr. Coll. Polym. Sci.*, 118, 208, 2001.
27. B. Abu-Hijleh and **H. Mousa**, "Water Film Cooling Over the Glass Cover of a Solar Still Including Evaporation Effect", *Energy*, 22, 43, 1997.
28. **H. Mousa**, "Modeling the Deposition of Colloidal Particles on Solid Spheres", *Sep. Sci. Techn.*, 32, 3037, 1997.
29. **H. Mousa**, "Deinking of Recycled Paper by Plastic Particles", *Muta Journal For Research and Studies*, 11, 1, 1996.
30. **H. Mousa** and M. Qasaimeh, "Experimental Investigation of the Deinking of Recycled Newspaper by Plastic Particles", *Sep. Sci. Techn.*, 31, 1093, 1996.
31. **H. Mousa** and T. G. M. van de Ven, "Solutions of the Shear-Induced Coalescence Equations for Polydisperse Emulsion Droplets Using Monte Carlo and Moments Techniques", *Colloids and Surfaces*, 95, 221, 1995.
32. **H. Mousa**, Modeling the Effect of Dispersed Ink Particles on the Reflectance of a Single Sheet of Paper, *Derasat B*, 22, 309, 1995.
33. **H. Mousa** and T. G. M. van de Ven, Stability of Water in Oil Emulsions in Simple Shear Flow I. Determination of the Orthokinetic Coalescence Efficiency, *Colloids and Surfaces*, 60, 19, 1991¹.
34. **H. Mousa** and T. G. M. van de Ven, Stability of Water in Oil Emulsions in Simple Shear Flow II. The Effect of Additives on the Orthokinetic Coalescence Efficiency, *Colloids and Surfaces*, 60, 39, 1991².
35. I. Tosun and **H. Mousa**, Flow Through Packed Beds: Wall Effect on Drag Force, *Chem. Eng. Sci.*, 41, 2962, 1986³.

Conferences

1. Kamal Al-Malah, **Hasan Mousa**, and Eihab Bani Hani, effect of electrolytes on formulation and stability of water/di-ethyl oxalate/tween micro-emulsions, 20th International Congress of Chemical and Process Engineering, Prague, Czech Republic, 25 – 29, August, 2012.
2. Mousa Abu-Arabi and Hasan Mousa, Research on Desalination and Hot Water Production Using Solar Energy in Jordan, International Conference on Renewable Energy Desalination, Tunis, 11-12, 2012.

¹ Extracted from the PhD thesis

² Extracted from the PhD thesis

³ Extracted from the M.Sc. thesis

3. **H. Mousa** and M. Abu Arabi, Desalination and Hot Water Production Using Solar Still Enhanced by External Solar Collector, Desalination for the Environment: Clean Water and Energy, Barcelona-Spain, April 23-25, 2012.
4. K. Almalah, **H. Mousa** and K. Al-Reemawi, Solubilization of Mefenamic Acid in Stable Micro-Emulsions Using Potassium Oleate, Tween-20, and Glycol, The 1st United Arab Emirates Conference on Pure and Applied Chemistry (ECPAC11), March 1 – 3, 2011. Sharjah, UAE.
5. **H. Mousa**, Mousa Abu Arabi, Manar Al-Naerat, Remah Al-Bakkar, Yasmeeen Ammera, and Amira Khattab, Solar Desalination by Indirect Heating, 5th International Ege Energy Symposium and Exhibition (IEESE-5) 27-30 June 2010, Pamukkale University, Denizli, Turkey.
6. **H. Mousa**, M. Mahasneh, H. Jalamneh, I. Bani Hani, M. Zawahreh, Evaluation of drinking water treated by reverse osmosis for calcium content and its impact on calcium deficit in Jordan, Desalination for the Environment: Clean water production, 17-20 May 2009, Baden-Baden, Germany.
7. **H. Mousa** and M. Abu Arabi, Theoretical and experimental study of water desalination by a falling film solar unit, ChemEng08, Birmingham, UK, October 28-30, 2008.
8. **H. Mousa**, Experimental study of UF membrane fouling by humic acid, Chemindix2007, Bahrain, March 26-28, 2007.
9. **H. Mousa** and S. Al Hitmi, Treatability of Wastewater and Membrane fouling, ADST 2006, Desalination Technologies and Water Reuse, Sharm Alsheikh, Egypt, May 13-15, 2006.
10. **H. Mousa**, The Drainage and Rupture of Film Between Two Interacting Drops in Simple Shear Flow Due to Hydrodynamic and van der Waals Forces, The Second International Conference on Thermal Engineering: Theory and Applications, Al Ain, United Arab Emirates, January 3-6, 2006.
11. **H. Mousa**, M. Azzam and A. Al-Maqraei, The Effect of Particle Size on the Deposition Efficiency of Ink on Plastic Particles, Interfaces Against Pollution, Miskolc-Lillafured, Hungary, May, 27-30, 2002.
12. **H. Mousa**, Deposition of Small Particles on Collector Particles in Turbulent Flow, 15th Conference of the European Colloid and Interface Society, Coimbra, Portugal, September 17-21, 2001.
13. **H. Mousa**, M. Al-Jabari and I. Al-Khateeb, Theoretical and Experimental Study of the Deposition of Ink Particles by Plastic Spheres, 40th Scientific Week, Latakia, Syria, 2000.

14. **H. Mousa**, J. Mellema and W. Agterof, Theoretical and Experimental Investigation of the Coalescence Efficiency of Droplets in Simple Shear Flow, 14th Conference of the European Colloid and Interface Society, Patras, Greece, September 17-22, 2000.
15. **H. Mousa**, Surface Tension, Micelle Formation and Detergency, 1st Symposium on Modern Detergent Techniques, Amman, Jordan, 1996.
16. **H. Mousa** and M. Qasaimeh, Experimental Investigation of the Deinking of Recycled Newspaper Using Plastic Particles, The 35th Science Week, Latakia, Syria, 1995.
17. **H. Mousa**, Deinking of Recycled Paper by Plastic Particle, Environmentally Sound Technologies Conference, Amman, Jordan, 1995.
18. **H. Mousa** and T. G. M. van de Ven, Shear-Induced Coalescence of Polydisperse Emulsion Droplets, 1st Jordanian Chemical Engineering Conference, Amman, Jordan, 1993.
19. **H. Mousa**, Modeling the Effect of Ink Particles on the Reflectance of a Single Sheet of Paper, 1st Jordanian Chemical Engineering Conference, Amman, Jordan, 1993.
20. **H. Mousa** and T. G. M. van de Ven, Coalescence Efficiency of Emulsion Droplets in Simple Shear Flow, 61st Annual Meeting of the Society of Rheology, Montreal, Canada, 1988.
21. R. Pelton and **H. Mousa**, 41st Canadian Chemical Engineering Conference, Vancouver, BC, Canada, 1991.
22. I. Tosun and **H. Mousa**, On the Cumulative **Drag** Stress in Filtration Theory, World 4th Filtration Congress, Ostland, Belgium, 1986.

Research Interest

- Water Desalination (membrane and solar types)
- Waste Water Treatment
- Biogas Production
- Biodiesel Production
- Emulsion Stability
- Colloidal Systems
- Micro-emulsions

Prizes

- Hisham Hijjawi Prize for Applied Sciences/Industry and Environment Sector, December, 1995.
- Pulp and Paper Research Institute of Canada, Graduate Student Award, 1986-1990.

- Middle East Technical University, Honor Student Award, 1979-1984.

Selected Activities

- Member of a joint research project on Modification of a reverse osmosis membrane with co-solvents to improve performance, King Abdulaziz City for Science and Technology (KACST), Saudi Arabia.
- Invited speaker, water day symposium to lecture on Small Scale Water Desalination Units, Sultan Qaboos University, Muscat, Oman, 2014.
- Member of the ABET committee in Qatar university and Jordan University of Science and Technology.
- Member of the Organization Committee of the Jordanian Chemical Engineering Conference II, III, V and VI.
- Working with team of professors from Purdue University and the American University of Beirut for the development of a new environmental education program.
- Chairman of the Organization Committee of the Jordan International Chemical Engineering Conference IV, Amman, September, 22-24, 2002.
- Joint research project with the Chemical Processes Engineering Research Institute/Aristotle University of Thessaloniki-Greece focusing on the Critical Assessment of Fouling Indices.
- Member of the review committee of Journal of Colloid and Interface Science, Process Biochemistry, Desalination, Bioresource Technology, World Journal of Chemical Engineering, Advances in Chemical Engineering Science, International Journal of Environmental Engineering, Journal of Food Processing and Preservation, Journal of International Environmental Application and Science, Journal of Chemical and Engineering data.
- Member of WEPIA team (Water Efficiency and Public Information for Action) working on water demand and management in Jordan.
- Joint research project with the Chemical Processes Engineering Research Institute/Aristotle University of Thessaloniki-Greece focusing Improvement of Techniques for Assessing RO Membrane Colloidal Fouling.
- Evaluated Research projects for the Ministry of Higher Education and Scientific Research, Jordan.
- Reviewer of research projects for Qatar National Research Fund (QNRF), Qatar.

- Reviewer of research projects for the Research Council (TRC), Oman.
- External examiner of several PhD and Master thesis for Australia, Malaysia, and Jordan.
- Evaluated many applications for the distinguished researcher's award for the Ministry of Higher Education and Scientific Research, Qatar National Research Fund.
- Member of the editorial board of
 - o Advances in Chemical Engineering Science Journal
 - o Advances in Chemical Engineering.
 - o Austin Journal of Chemical Engineering
 - o Advances in Chemical and Biological Engineering Journal

Funded Research Project

- Solar Desalination and hot water production using a falling film enhanced by counter current air flow (2014).
- Modification of a reverse osmosis membrane with co-solvents to improve performance
- Potential production of biogas from the sludge of the wastewater treatment plant at Jordan University of Science and Technology (2011).
- Desalination and hot water production using solar still enhanced by external solar collector (2011).
- Desalination and hot water Production by solar energy (2010).
- Single-effect falling film solar desalination (2006).
- Improvement of techniques for assessing RO membrane colloidal fouling (2004).
- Critical assessment of fouling indices (2001).
- Experimental and theoretical study of multicomponent ion exchange in fluidized bed (2000).
- Coalescence of non-Newtonian phase separated fluids (1998).
- Determination of emulsifying properties of some proteins using conductivity technique (1998).
- Disposition of ink particles on the surface of spherical plastic particles

(1996).

Held Workshops

- Safety in Chemical Industry workshop, May, 2009.
- Water desalination by membrane processes, April, 2003.
- Water demand management, February, 2002.

Referees

1. Prof. Dr. Mousa Abu Arabi
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