JAMEL A. ORFI

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https://scholar.google.com/citations?hl=en&user=AegubyoAAAAJ&view_op=list_works&sortby=pubdate
https://www.researchgate.net/profile/Jamel_Orfi
https://www.webofscience.com/wos/author/record/AAT-4595-2020
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Summary

Dr. Jamel Orfi *obtained his BSc of Mechanical Engineering from Laval University, Canada and his MSc and PhD Degrees from Sherbrooke University, Canada in 1995. He worked in Tunisia and Canada as assistant Professor. He joined King Saud University (KSU) in 2007. His research interests focus on desalination processes and analysis of thermal and desalination systems, as well as on renewable energy applications. He developed several national and international collaborations on research projects on power and desalination, solar energy, evaporative cooling systems, and brine discharge problems. He has several publications including more than 115 journal papers (most are ISI) and 40 papers in international conferences, 7 book chapters and one granted US patent on solar desalination. Dr. Orfi had been between 2012-2014 a member of KSU's MED (Multiple Effect Distillation) technology transfer team collaborating with SWCC (Saline Water Conversion Corporation). He is a Fellow KA.CARE Energy Research and Innovation since 2019. He is involved in teaching and supervising undergraduate and graduate students on Desalination and Energy Sciences.*

A. EDUCATION

Ph.D. Mechanical Engineering, University of Sherbrooke, Canada (1991-1995)
Advisors: Prof. N. Galanis and C.T. Nguyen
Dissertation: *Mixed Convection inside Inclined Tubes: Simultaneous Development and Bifurcation Phenomena*

M.A.Sc. Mechanical Engineering, University of Sherbrooke, Canada (1989-1991)
Advisors: Prof. N. Galanis and C.T. Nguyen
Thesis: *Numerical Study of Natural Convection Effects in Fully Developed Flow in Circular Tubes*

B.A.Sc. Mechanical Engineering, Laval University, Québec, Canada (1985-1988).

- Full Scholarship: Government of Tunisia (B.A.Sc. and M.A.Sc.); University of Sherbrooke (Ph.D.)
- Post Doctoral diplôma (HDR) «Habilitation à Diriger des Recherches » College of Sciences of Tunis, May 2006.
- Adjunct Professor, University of Sherbrooke, Canada (2007-2010).
- Awarded a ten month grant from the *Abdus Salam International Centre for Theoretical Physics,* Italy - ITCP, Training and Research in Italian Laboratories- TRIL Program (*July 2006, declined - I accepted an academic Position in Canada).*
- Participated, under invitation, to the NATO Advanced Research Workshop on *"Solar Desalination for the 21st Century"*, Feb. 23-25 2006, Hammamet, Tunisia.
- Member of KSU technical team collaborating with the Saline Water Conversion Corporation (SWCC) for transferring multiple effect distillation (MED) technology and developing a design guide for MED plants (2011-2013).
- Awarded a Visiting Scholars' Fund, Aston University, Birmingham, UK (1-16 July 2014)

- Best Poster Award, Euro Med 2015, Desalination for Cleatn Water and Energy, Palermo, Italy, 10-14 May, 2015.
- Awarded the "Excellence in Scientific Research-first award", College of Engineering, KSU, 2019.
- Fellow KA.CARE Energy Research and Innovation Center at Riyadh, Saudi Arabia, Nov 2019-

- **Attended Short Courses/workshops on:**
  - Attended workshop on "Preparation of Academic Accreditation Requirements", 24 and 27 March 2022, College of Eng., KSU.
  - Attended several webinars on Water, Desalination and Energy technologies, 2018-2020.
  - Workshops on Scientific Research: «Developing effective research proposals », « Establishing Research Management », «Developing effective research proposals » by H.B. Coates, organized by Deanship of Skills Development (DSD), KSU, 6hrs each (18hrs total), 26 Feb - 2 March 2017.
  - « New Trends in Membrane Desalination » KACST, Riyadh, KSA, Feb 25, 2014.
  - « Desalination Economics and Cost Evaluation » Riyadh, KSA, April 9, 2012.
  - « Membrane Technology for water and water treatment » KSU, Riyadh, KSA, Oct, 2009.
  - « Application and Optimization of Hybrid Power and Desalination Systems » Riyadh, KSA, April 23, 2008.
  - « Reverse Osmosis Desalination » (March 14-18, 2005, Tunis, Partial financial support from Middle East Desalination Research Center MEDRC).
  - « Membrane technologies for water drinking and desalination » (November 11-15, 2002, Delft, Holland, Full financial support from MEDRC).

B. EXPERIENCE

Research and teaching activities and Interests

- **Desalination with focus on process and energy efficiency** (Multiple Effect Distillation (MED), Multi Stage Flash (MSF), Membrane Distillation (MD) Humidification–Dehumidification (HDH), Reverse Osmosis (RO));
  - ✓ Desalination driven by RE (Solar, Geothermal, Wind);
  - ✓ Solar Poly-generation, RE-ORC (Organic Rankine Cycles)
  - ✓ Thermodynamic (1st and 2nd laws) analysis of Energy and Desalination systems
- Convective Heat Mass Transfer with Evaporation-Condensation
- *Teaching undergraduate and graduate courses in Thermo-fluid Sciences and Desalination*.

1. **Associate Professor** (30.06.2011 -),
   Department of Mechanical Engineering, King Saud University, Riyadh, Saudi Arabia.
2. **Assistant Professor** (01.08.2006 - 31.06.2007),
   Faculty of Engineering, University of Moncton, New Brunswick, Canada
3. **Assistant** (01.10.97 - 21.12.06), **Associate Professor** (21.12.06 –30.01.12) and Full **Professor,**
   Faculty of Sciences of Monastir, University of Monastir, Tunisia (On leave)
4. **Researcher** (01.10.1997 -01.08.2006),
   Laboratoire d'Études des Systèmes Thermiques et Énergétiques (LESTE), National School of Engineering, Monastir, Tunisia
5. **Mechanical Engineer** (10.96 - 09.97), Ansaldo Energia, Constructor of Power Plants (350 MW), Tunis
6. **Teaching Assistant (**1989-1993), Faculty of Applied Sciences, Sherbrooke University, Canada.

C. ACTIVITES RELATED TO THE SCIENTIFIC AND SOLCIAL COMMUNITIES

C1. Department level

1. Coordinator of the Graduate Studies Committee, Mechanical Eng. (ME) Department, Since Aug. 2017.
2. Coordinator of ME Department Seminars, KSU, Since Oct 2009.
3. Member of several Departmental Committees:
   - Graduate studies committee (2008-2017);
   - Capstone Projects Committee (2009-2015).

- Web Site Committee (Sept 2007- July 2008)

C2. College level

1. Member, Graduate Studies Programs Accreditation Committee, college of Engineering, since Jan 2022.
2. Responsible of the "Graduate Studies Unit", College of Engineering, KSU, January-December 2022.
3. Responsible of the "Continuation Learning Unit", College of Engineering, KSU, January-December 2022.
4. Member of the steering committee for the MSc in Desalination Engineering, KSU, Since 2011.
5. Chair of the Committee of 'BAE systems Graduation Projects Awards to select best three capstone projects at the college level', College of Eng, KSU, Sept 2017-June 2022.
6. Involvement in the 'Solar Decathlon Middle East (SDME-2018), KSU Team, Coordinator of the 'Thermal Management Team', Sept 2016-June 2018.
7. Coordinator of the Multidisciplinary Graduation Projects Committee, College of Eng, KSU, 2013-2017.

C3. Editorial activities

1. Academic Editor, Academia Engineering, January 2023-
2. Guest Editor of a Special Issue in 'Water journal (IF=3.53)'-MDPI, on "*Desalination Technologies and Renewable Energy Sources*" Deadline of submission: 24 Nov 2023. https://www.mdpi.com/journal/water/special_issues/149025PFPE
3. Member of the advisory committee of the International Conference on "*Advances in Renewable and Green Energy Technology* (ICARGET-2023), organized by Guru Ghasidas Vishwavidyalaya(GGV), India and Universiti Kebangsaan Malaysia.
4. Guest Editor of a Special Issue on 'Membrane Distillation Systems' (J. of Membranes-MDPI, Swiss.) https://www.mdpi.com/journal/membranes/special_issues/membrane_distillation_system, Oct 20-May21
5. Member of the International Chairman Board of the 2nd Edition of the International Conference on Innovative Applied Energy (IAPE20), Cambridge UK, 15-16 September 2020 (Virtual Conference).
6. Member of the scientific committee of:
   - 14th Int. Conf. Computational Heat, Mass and Momentum Transfer', ICCHMT2023, 4-8 September, 2023, Dusseldorf, Germany.
   - 13th Int. Conf. Computational Heat, Mass and Momentum Transfer', ICCHMT2021, 18-21 May, 2021, Paris, France
   - ICCHMT2019 (Rome, Italy, 3-6 September 2019), as well as the 11th (Poland), 10th (S. Korea) and 9th (Poland).
   - Cifem 2010, Premier Colloque International Francophone d'énergétique et de Mécanique, 17-19 May, 2010, Dakar, Sénégal.
   - ATM 2010, Colloque de l'Association Marocaine de Thermique, May 2010, Agadir, Morocco.
7. Guest editor for a special issue *on Desalination Driven by Renewable Energy* in "Advances in Mechanical Engineering", Hindawi, 2012-2013.
8. Chair of the scientific committee of the 'International Conference on Computational Methods in Energy Engineering and Environment' held at Sousse, Tunisia, November 20-22, 2009.
9. Member of the Editorial Board of
   - Journal of Solar Energy Research Updates, 2019- http://www.zealpress.com/journal-of-solar-energy-research-updates-ebm/;
   - Int Journal of Advanced Thermo-Fluid Research, 2015- http://www.ijatr.org/

C4. Others

1. External Examiner of Thesis:
   a. MSc thesis "Investigate the potential of floating solar system in Bahrain", Univ of Bahrain, Feb 8, 2022
   b. PhD thesis "Thermodynamic and Sustainability Evaluation of Hybrid Desalination Systems: Multi Effect Distillation – Adsorption (MED-AD) and Forward Osmosis – Membrane Distillation (FO-MD)" (KAUST), Defended on Nov 4, 2020.
   c. PhD thesis "Heat pump operated humidification-dehumidification desalination system), KFUPM, April 11, 2019".
2. Instructor - mentor for the Renewable Energy Section, Mawhiba program (For Gifted and Creative Secondary School students, 15-17 years), Riyadh, July 22 - August 9, 2018(Three weeks).

3. Instructor - mentor for the Mechanical Engineering Section, Mawhiba program (For Gifted and Creative Secondary School students, 15-17 years), Riyadh, July-Aug. 2017. (Three weeks).
4. Member of the European Desalination Society (2004 -);
5. External referee of research grant proposals for a number of local and external academic institutions
6. Session chair at national and international scientific conferences.
7. External evaluator of several PhD theses from University of Sherbrooke, Canada; Anna University Chennai, India; University of Sfax, Tunisia, etc.
8. Reviewer for several journals including: ASME Journal of Heat Transfer, Desalination, Desalination and Water Treatment, International Heat and Mass Transfer, Energy, Applied Energy, Membranes, Water, Energies, Processes (MDPI), Applied Thermal Engineering.
9. Reviewer for Research proposals and progress/final reports from various institutions (inside and outside KSA).

10. Voluntary judge, youth Canada Sciences, Truro, Nova Scotia, Canada, 15-17 may 2007.
11. Member of the « Société Tunisienne de Physique » (Local section, 2002-2004), Tunisia
12. Member (graduate student representative) of the Electoral College for the Nomination of the **President** of the University of Sherbrooke (1992-1993).
13. Member of the Executive of the Inter-Cultural Association of the Univ. of Sherbrooke (90- 91).

RESEARCH ACTIVITIES

Overview Picture

Publications	**Technical Reports/Theses**	**Students supervised-supervising**	**Indices**	**Citations**
1 Patent 8 Book Chapters 115 Journal Papers 43 Conf. Papers	21	PhD (7) MSc (18)	h Index (Google scholar) 28 (22 since 2018) 25 Research gate	(Google scholar) 2546 (1572 since 2018), Research gate, 2224 citations

1. Talks and Conferences (Last five years)

1. Delivered an oral presentation on:
   a. "Gas Turbines Coupled with Mechanical Vapor Compression System under Ambient Conditions of Riyadh, *13th International Exergy, Energy and Environment Symposium (IEEES-13)*, March 14th – 17th, 2022, Makkah, Saudi Arabia.
   b. "Membrane Distillation and its integration with conventional desalination technologies", *8th International Conference on Water Resources and Arid Environments*, 22-24, January, 2019, Riyadh, KSA
   c. "Design and modeling of brine discharge from desalination plants", *8th International Conference on Water Resources and Arid Environments*, 22-24, January, 2019, Riyadh, KSA
2. Presented a talk on:
   a. " Desalination and Energy", KSU-KAUST Initiative 2018, KAUST, Feb. 14, 2018.
   b. "Overview on research activities of KSU on Desalination and Energy", KSU-SWCC collaboration Initiatives, Feb. 20, 2018.
   c. "Hybrid Desalination Processes", Saudi Council of Engineering (Intern. Desalination Association IDA, KSA Section), Riyadh, January 3, 2018.
   d. "Overview on projects on 'Energy and desalination', First Workshop between KACST and French National Center for Scientific Research (CNRS), 21-23 Nov 2016, Riyadh, KSA.
3. Attending the "Water-Food-Energy Nexus "- Science Collaboration Symposium - Between UK and GCC Countries, AlManama, Bahrain, 23-24 November 2016 (travel and accommodation Sponsored by British Council after application submission and selection).
4. Moderator of Session 2 (technical), UK-KSA Science collaboration workshop on Water and Energy, Organized by the British Council and KSU, 21 and 22 March 2016.

5. Presented a Conference on "Water management in KSA: Status and challenges", In the scientific meeting on" Science for Society-how Research is helping you" organized by the British council and KSU, 5 May 2016.

2. Consultation work

1. "Economic estimation of the cost of desalinated water using fossil fuel, Renewable energy and nuclear energy in KSA", King Abdullah City for atomic and renewable energy, KA-CARE, Riyadh, Final Report submitted on 21 Feb 2021, P. 61, by H. A. Al-Ansary, O. Zeitoun, **J. Orfi** and S.U.Khan
2. Development of a software program for CSP-MED integration using SAM outputs (Sept 2015-June 2016), Doosan Heavy Industries and Construction, H. AlAnsary, **J. Orfi**, O. Zeitoun, S. AlAqel, M. Najib and E. Djajadiwinata, E. Kerme, Final report submitted on June 2016, *Completed.*
3. Development of Thermo Vapor Compressor (TVC) Design Program (Sept 2014-Dec 2015), Doosan Heavy Industries and Construction, H. AlAnsary, **J. Orfi**, S. AlAqel, M. Najib and E. Djajadiwinata, Final report submitted on Dec 2015, *Completed.*
4. Techno-Economic Feasibility study of Nuclear Desalination in KSA, King Abdullah City for Nuclear and Renewable energy, KA-CARE, H. AlAnsary, J. Orfi, O. Zeitoun and S. Khan, Started March 2020, *Completed*

3. Research Grants-Contracts:

In Progress

1. DESOLINATION "DEmonstration of concentrated SOLar power coupled wIth advaNced desalination system in the gulf region" funded from the European Union's Horizon 2020 (agreement No. 101022686), 2021-2025.
2. KAUST-KSU Initiative Award: Multi-effect distillation – membrane distillation hybrid for increased water production and thermal brine management, 2018-2020, extended to 2020-2021 with Dr Hany AlAnsari and Dr Emad Ali. *The project is completed but the KSU-KAUST collaboration is sustained.*
3. Nuclear Desalination, funded by KACST, KSA, J. Orfi (Co-I), S. Khan (PI), Started June 2020, *In progress.*
4. Activated Carbon/Methanol Adsorption Cooling System Driven by a Novel Solar-Powered Heat Engine, H. Alansary (PI), J. Orfi, M. Mohamad and H. Zohair, NPST, KACST *Awarded, Started Sept 2019, In progress.*
5. Performance Study Of A Hybrid Building Cooling System Using A Solar Air Heater and Waste Heat Recovery, J.Orfi (Co-I), Dr Zakaria Kaneesamkandi (PI), Dr B. Salim (Co-I), *Awarded, Started Dec 2019, In progress*
6. PI of the Research group on "Energy and Desalination", Deanship of Graduate Studies, KSU, Grant # RG VPP 091, 2013-15, 2015-18, 2019-2020.
7. Member of the research group "Membranes Technology: Application and Analysis", Research Group Grant # 1438-093, Deanship of Graduate Studies, KSU, 2017-2020.

Pending/not awarded

1. Submission of two proposals for the EU- Horizon 20 on 'Efficient Combination of CSP and Desalination (with particular focus on the GCC region)', Sept 2020, KSU members J. Orfi, H. Al-Ansary, Z. AlMutairi, One ***Awarded***
2. Submission of a Proposal for possible research collaboration between KSU and UAE Universities on (Prospects of utilizing solar desalination technologies in remote areas of KSA and UAE), Feb 2020, *Not accepted.*
3. Submission of a proposal for the Asian Universities Alliance (AUA) on "A novel wind-solar chimney power plant", for a possible research collaboration between KSU-UAEU, KSU members-J.Orfi (PI), H. AlShehri and I. Seddiqui , 30 June 2020, *Not accepted*
4. Submission of two proposals, Research and Development Office, Ministry of Education (MoE), KSA, Oct 2018:

- Innovative Technological Developments to improve Solar Hybrid Desalination Feasibility in the Kingdom of Saudi Arabia, Principal Investigator, with researchers from KSU, PSA-Spain, KAUST and SWCC *(Not awarded)*.
- Concentrated Solar Power and Nuclear Hybrid System for Zero-Carbon Power Generation and Desalination, CO-I with researchers form KSU and Korea (KAIST) *(Not awarded).*

5. Submission of two proposals, GPURC, KACST, June 2017/June 2018 *(Awarded)*
6. Experimental and Numerical heat transfer studies in three dimensional micro-features and substrates for heat removal applications, J. Orfi (Co-I), Zeyad A. Almutairi (PI), A.AlHussaiani (Co-PI), Submitted June 2018, *(Not Awarded)*
7. Co-generation of Biofuel & Potable water using Membrane Technology, J. Orfi (Co-I), J. Saleh (PI), E. Ali (Co-I), Submitted June 2017, *(Not Awarded)*'
8. Submitted an Application for a funding to the British Council, in order to attend the 'Science Collaboration Sympo. UK and Gulf Countries on Clean and Renewable Energy, EUA", Sept 2017, *the application was not accepted.*

Completed

1. Study of the Technical Feasibility of Geothermal Driven Membrane Distillation for the Desalination of Local Brackish Water, National Projects of Science and Technology NPST, Kacst, Jamel Orfi (CO-I) with E. Ali, A. Ajbar, K. Alhumaizi and M. Boumaza, *Completed, 2019***.**

2. Environmental Impact and Solutions for Desalination Plant Discharge into Shallow coastal regions, National Projects of Science and Technology NPST, Kacst, J. Orfi (CO-I) with Dr S. Sanea (PI), *Completed, 2017.*
3. Energy and exergy analysis of a cogeneration power and desalination plant, National Projects of Science and Technology NPST, Kacst, Jamel Orfi (PI) With Drs B. Salim, Z. Al-Suhaibani and H. Al Ansari, *Completed*, 2013.
4. Transient heat transfer investigation in a vertical flow, Research Center, College of Eng., KSU, with Dr M. Boumaza (PI), *Completed, 2009.*
5. Transport Phenomena in a membrane distillation unit, Research Center, College of Eng., KSU, *Completed, 2013.*
6. Autonomous Solar desalination system) 'Système de dessalement solaire autonome', AUF (AgenceUniversitaire de Francophonie), with Drs T.Maré (France), O.Sow and M.Adj (PI) (Sénégal), 2008-2011, *completed.*
7. "Transferts couplés de chaleur et de masse lors du dessalement de l'eau de mer", AUF (Agence Universitaire de la Francophonie), with Drs N Galanis (U Sherbrooke, Canada), B. BenHamou (U Kadhi Iyadh, Morrocco), S. Ben Nasrallah (U Monastir, Tunisia), and C.T. Nguyen (U. Moncton, Canada), *Completed, 2004.*

3. Supervision or co-supervision of**:** Total of 5 PhD (completed), 12 MSc (completed) and 2 MSc (in Progress)

MSc Thesis, (King Saud University) (**13 completed and 5 in progress)**

	Student Name	Thesis Title	Status	Co-Supervisor
19	Mohammed AlNasser	Vapour compression water desalination system powered by seawater waves and solar energy	In progress	Dr Obida
18	Abdulaziz Bin Dayel, MSc-Mech. Eng	Techno-economic study of solar cooling techniques in KSA	In progress, since Dec 2020	None
17	Mothanna AlSharif, MSc Desalination Eng.	Thermodynamic Analysis of Multi-Stage Flash Desalination Technology Utilizing solar energy	In progress, since Nov 2021	None
16	Fahd AlGarni MSc- Mech. Eng.	Performance study of solar supercritical CO_2 Brayton Cycle Integrated with Thermal Desalination	In progress, since Nov 2021	None
15	Faisal Abdulaziz Almudhhi	Techno-economic assessment of different solar desalination by reverse osmosis technologies in Saudi Arabia	Submitted, March 2022	Dr M. Boomazaa Dr J. Orfi (Scientific advisor)
14	Meshari M. Alanazi MSc, MSc, Sustainable Energy Program	Hybrid Nuclear-Concentrated Solar Power System Using CO_2	In progress, since 2019	Dr. B. AlGahtani Dr S. Khan Dr J. Orfi (Scientific advisor)

13	Zeyad Haidar PhD, Electrical Eng.	Enhancement of Power Systems Flexibility for Renewable Energy Penetration Using Membrane Based Technologies	Completed 21 March 2021	Dr Mamdooh Al-Saud (Elec. Eng), Dr J. AlAnsary and Dr J. Orfi (Co)
12	AbdulRahman AlRabiaa (SET)	Feasibility Study of Solar Powered Desalination Plants in Saudi Arabia	Completed June 2021	J. Orfi (PI) S. Khan (Co)
11	Faisal Abuderman	Simulation and evaluation of the performance of SWCC thermal desalination plants using exergy analysis	Completed June 2020	None
10	Ahmed AlGhamdi (Msc- Desal. Program)	Study on the prospects of solar assisted desalination plant in remote areas of western region of Saudi Arabia	Completed, May 2019	A. Fakeeha, (PI) O. Hamed (SWCC), H. AlAnsary (Co) J. Orfi (Co)
9	Abdullah Najib (PhD) Mech. Eng.	Experimental and theoretical studies on Multistage of a Vacuum Membrane Distillation driven by solar energy	Completed June 2021	Principal supervisor H. AlAnsary J. Orfi (Co)
8	M. Al-Matrafi (Msc), Desalination Prog.	Integrated Membrane Distillation and Reverse Osmosis of geothermal brackish waters	On going Started Feb 2016	
7	AlNakhli A. (Msc) Desalination Program.	Experimental Study of the Performance of Different Thermal Receiver Designs for a Point Focus Solar Fresnel Collector for Use with Thermal Desalination	Completed June 2017	Dr H. AlAnsary (Principal) Dr Osman Hamed, SWCC (Co) J. Orfi (Co)
6	S. Baakeem Msc, Mech. Eng.	Performance Evaluation and Economic Analysis of Gas Turbine Power Plants with Inlet Air-Cooling Technologies in Saudi Arabia	Completed June 2016	H. Al-Ansary
5	A. Albeladi Msc, Mech. Eng.	Assessment of Cooling Methods on Performance of Hybrid Solar Photo Voltaic Thermal Collector	Completed June 2016	Z. Kaneesamkandi
4	Z. Abdelwahed MSc, SET .	Experimental Study of the Impact of Evaporative Cooling on the Performance of Solar Photovoltaic Panels	Completed May 2016	Z. Kaneesamkandi
3	E. Kerme Msc, Sustainable Energy Program	Performance analysis of poly-generation system driven by solar energy	Completed May 2015	None
2	M. Al-Harbi MSc, Mech. Eng.	Geothermal energy in Saudi Arabia and its application in desalination	Completed Jan 2015	Z. Alsuhaibany
1	A. Zahrani, MSc, Mech. Eng.	Energy and exergy analysis of desalination and dual purpose plants	Completed Sept 2013	Z. Alsuhaibany

- 1 Ph.D. thesis " Modeling and simulation of transport phenomena in Membrane Distillation unit", (École Nationale d'Ingénieurs de Monastir, Tunisia, Completed, Sept 2015, Nizar Loussif).
- 4 Ph.D. theses (Faculté des Sciences de Tunis 2001 and 2009; University of Sherbrooke, 2005, École Nationale d'ingénieurs de Monastir, Tunisia, 2006).
- 1M.Sc.A thesis (University of Sherbrooke, Canada, 2003)
- 4 M.Sc. thesis (École Nationale d'Ingénieurs de Monastir, 1999, 2001, 2002 and 2006)

4. Publications

4.1 Patents

Granted: Inventors: Dr Jamel Orfi with Eng. Zeyad Abdulwahid Ghaleb Haidar
"Solar Desalination system", US patent, Patent number: 10384165. Date of Patent: Aug 20, 2019; https://patents.justia.com/patent/10384165

Submitted (19.08.2020): Z. A. Haidar and J. A. Orfi, "Membrane Distillation Design to Reduce the Scaling/Fouling Potential", (File # 012021-01053)
Submitted (28.11.2020): J. Orfi, A.Najib, H. Al-Ansary and E. Ali, "Multiple Effect Vacuum Membrane Distillation-Thermal Vapor Compression Hybrid System", (File # 012021-01062).
Submitted (21.02.2021): Z. A. Haidar, J. A. Orfi, M. S.Al-Saud and H. Al-Ansary, "Using Reverse Osmosis Plants in Renewable Energy Storage as a Pressurized Brine Water" (File # 032021-01069).

4.2 Book chapters (Eight)

[BC8] **J. Orfi**, A. Mohamed "Liquid Film Evaporation: Review and Modeling" Book chapter in 'Humidity Sensors', London: IntechOpen, 2022. 10.5772/intechopen.105732. https://www.intechopen.com/online-first/83473.

[BC7] A. Dhahri, A. Omri, **J. Orfi**, Night Operation of a Solar Chimney Integrated with Spiral Heat Exchanger, 2021, Book Chap. pp. 371-393, in *Numerical Methods for Energy Applications*, Power Systems, Editors N. M.Tabatabaei and N. Bizon, https:// DOI: 10.1007/978-3-030-62191-9_14.

[BC6] TV Arjunan, HS Aybar, **J Orfi**, S Vijayan, Performance Analysis of Solar Desalination Systems, **Book Chapter** #4, pp 75-104, in Solar Desalination Technology, Springer Nature Singapore, Editors A. Kumar and O. Prakash, 2019.

[BC5] Salah Ud-Din Khan, Shahab Ud-Din Khan, Syed Noman Danish, **Jamel Orfi**, Usman Ali Rana, Sajjad Haider, Nuclear Energy Powered Seawater Desalination, Book Chapter 6, pp 225-264, in Renewable Energy Powered Desalination Handbook, Applications and Thermodynamics, *Editor*Veera Gnaneswar Gude**,** ISBN: 978-0-12-815244-7, CRC, Elsevier, 2018.

[BC4] A. Dhahri, A. Omri and **J. Orfi**, Theoretical analysis on the performance of a solar chimney coupled with a geothermal heat exchanger, **Book Chapter** 1, pp. 1-27, in CFD Techniques and Energy applications, Zied Driss, Brahim Necib and Hao-Chun Zhang, ISBN: 978-3-319-70949-9, Springer International Publishing, 2018.

[BC3] **Jamel Orfi**, Nizar Loussif and Z. Almutairi , Heat Transfer in Micro-Ducts, Book Chapter, Heat and Mass Transfer: Advances in Energy Research , Vol. 26, **Editor** Morena J. Acosta, **ISBN:** 978-1-53611-325-9, pp. 1-26, Nova Science Publisher, NY, 2017.

[BC2] S. Al-Sanea, and **J. Orfi**, Concentrated Brine and Heat Dispersion into Coastal Shallow Waters of the Arabian Gulf, Chapter 21, pp. 469-500, in Intakes and outfalls for seawater reverse osmosis desalination facilities: Innovations and environmental impacts, Editors T. M. Missimer, B. Jones, and R. G. Maliva, Springer, Berlin, 2015.

[BC1] **J. Orfi** and N. Loussif, Modeling of a Membrane Distillation unit for Desalination, ***Book Chapter***, in Desalination: Methods Costs and Technology. Editor: I. A. Urboniene, ISBN: 978-1-61668-909-4; pp. 143-174; Nova Science Publishers, NY, 2010.

7.3 Journal papers

2023 (4 ISI Papers, 0 Non ISI)

[xxx] M. Khennich, N. Galanis, M. Sorin, **J. Orfi** and S. Dupuis, Thermodynamic Analysis of a Solar Powered Ejector Cooling System, Frontiers in Thermal Engineering, Under Revision, 2023.

[118] Emad Ali, Abdullah Najib, **Jamel Orfi** & Fahad Awjah Almehmadi (2023) Improved model structure of direct contact membrane distillation for saline water purification, Chemical Engineering Communications, DOI: 10.1080/00986445.2023.2240726

[117] E.Ali, **J. Orfi,** H. AlAnsary, A. S. Alsaadi, N. Ghaffour, M. Khennich, Improved modelling and simulation of once-through and reverse multi-stage flash desalination configurations, Canadian Journal of Chemical Engineering, 01 June 2023; https://doi.org/10.1002/cjce.24969

[116] Ud-Din Khan, Salah and **Orfi, Jamel**. "Computational analysis of nuclear desalination system under various configurations" *Kerntechnik* (2023). https://doi.org/10.1515/kern-2022-0100

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