



Prof. Hassan El-Banna S. Fath
Expert in Desalination & Energy Technologies
(Academic & Industrial Experience)

Google Scholar https://scholar.google.com/citations?user=M-jI_nUAAAAJ&hl=en

Scopus Scholar <https://www.scopus.com/authid/detail.uri?authorId=7004187101>

Research Gate Profile https://www.researchgate.net/profile/Hassan_Fath

PERSONAL INFORMATION

Present Address : 3 Yehia Ebraheem, Sporting, Alexandria (Egypt)
Present Mobile No : +20 (127) (1111 740)
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EDUCATION

1981 **Ph. D.** (Boiling Heat Transfer)
Mech. Eng. Dept., Mc Master University, Hamilton, Ontario (Canada)
1977 **M. Eng.** (Boiling Heat Transfer)
Mech. Eng. Dept., Mc Master University, Hamilton, Ontario (Canada)
1975 **M. Sc.** (Heat Exchanger Performance)
Mech. Eng. Dept., Alexandria University, Alexandria (Egypt)
1972 **B. Sc.** (*Distinction with Honor-Top of Class Award*)
Mech. Eng. Dept., Alexandria University, Alexandria (Egypt)

EXPERIENCE

2017 – Now Egypt- Japan University of Science & Technology (E-JUST), Alexandria, Egypt
Professor; Head of Water Resources Lab., Env. Eng. Dept, (Desalination)
2014 – 2016 American University of Sharjah – AUS, Sharjah (UAE)
Visiting Professor, Mechanical Engineering Dept. (Heat Transfer,
Thermodynamics and Desalination Processes & Technologies)
2013 – 2014 Egypt- Japan University of Science & Technology (E-JUST), Alexandria, Egypt

2010 – 2013 Professor, Environmental Eng. Department (Desalination)
Masdar Institute (MI) of Science & Technology, Abu-Dhabi, UAE

1982 – 2011 Professor of Practice, Water and Environmental Engineering (Desalination)
Faculty of Engineering, Alexandria University, Alexandria (Egypt)
 Assistant / Associate / Full Professor Mechanical Eng. Department, (Thermo-
 fluid Engineering, desalination and energy technologies).
2011 - Now Distinct Scientist-Contracted (Part Time).

2007 - 2010 **Doosan Heavy Industries-Korea, Dubai, UAE**
Senior Researcher and leader of the new thermal desalination processes.

2002 - 2004 King Abdul Aziz University, KSA
 Visiting Associate Professor, Desalination Technologies Department, (Thermo-
 fluids and Desalination Processes).

1993 - 1997 **Saline Water Conversion Corporation (SWCC), KSA;**
Senior Engineer, Head of Efficiency & Statistics (E&S) department and
supervisor of Curriculum Development (CD) program.

1991- 1993 **Saudi Arabian Marketing and Refining Co. (SAMAREC), KSA;**
Course Designer & Head of Engineers Curriculum Development Program.

1990- 1991 **Saudi Consolidated Electricity Company (SCECO-W), KSA**
Head of Curriculum Development Program.

1989/1990 Qatar Univ., Qatar & Univ. of Beirut-Lebanon
 Visiting Associate Professor

1985- 1987 University of Technology, Baghdad, IRAQ
 Assistant Professor

1980 – 1982 **Atomic Energy of Canada Limited, CANADA**
Process Engineer; Design & Development Dept. Eng. Company,
Mississauga, Ontario (process Design of CANDU 950).

May – Sept, 1977 **Ontario Hydro, CANADA**
Process Engineer; Thermal hydraulics (Darlington Plant)

1975 – 1980 Mc Master University, Hamilton, Ontario (CANADA)
 Research & Teaching assistant, Thermal Engineering (M.Eng / Ph.D. in Boiling
 Heat Transfer)

1972 – 1975 Alexandria University, Alexandria (EGYPT)
 Research & Teaching Assistant, Thermal Engineering (M.Sc. in Heat Exchanger
 Performance).

Funded Projects

Accepted - On Going

- 1- Co-PI, EU funded project “BIM for Energy Efficiency in the Public sector (BEEP) project”, funded by ENI CBC Mediterranean Sea Basin Programme (2019-2022),
- 2- PI, “A Novel Solar Driven Mechanical Vapor Compression Desalination System with Nano Filtration Pretreatment”, STDF, project No. 30457 (2019-2021)
- 3- Co-PI, Newton – Musharafa / UK-Egypt Fund, “Low Grade heat recovery for absorption chiller and desalination from concentrated solar power steam power plants in Egypt”, STDF, project No. 30729 (2019-2021).
- 4- Consultant, Newton – Musharafa / UK-Egypt Fund, “Solar Driven Water Treatment System using MOF Adsorption Integrated with Nanomaterial Pre-treatment and Real Time Water Quality Sensor for Egypt”, STDF project no. 30736 (2019-2021).
- 5- Consultant, Newton – Musharafa / UK-Egypt Fund, “A Novel Standalone Solar-Driven Agriculture Greenhouse - Desalination System: That Grows its Energy and Irrigation Water “, STDF project no. 30771 (2019-2021).
- 6- Consultant, QNRF-NPRP Qatar “Development of Solar Driven Adsorption Water Desalination / Cooling System Using Advanced Metal Organic Framework Material”, NPRP9-028-2-012, QE.00.566.332102.QE47.QEE9 (2016-2020).

Under-review

- 7- PI, STDF Innovation Grant (#34777) “A Novel Solar Driven Adsorption Thermal Vapor Compression (AD-TVC) Desalination System with Forward Osmosis (FO) Pretreatment” (2020-2022).
- 8- Consultant, US-Egypt proposal on “Integrated PV/T, Thermo-chemical Energy Storage and Solar Distillation System for the Simultaneous Production of Electricity, Water and Cooling”, Submitted Sept. (2019).
- 9- Consultant, US-Egypt proposal on “New lower-cost corrosion resistance alloys for better performance water desalination systems”, Submitted Sept. (2019).
- 10- Consultant, Egyptian Japanese Scientific Cooperation (JEJSC), Call-11 a proposal on “Development of cooling system of flow boiling for high concentrator photovoltaic using a metal 3D printer”, Submitted August (2019).
- 11- Consultant, Egyptian Japanese Scientific Cooperation (JEJSC), Call-11 a proposal on “Solar-Powered Thermochemical Storage System for Cooling Applications”, Submitted August (2019).
- 12- Consultant, Newton – Musharafa / UK-Egypt Fund, “Development of solar cooling unit using Additive Manufacturing for food preservation”, Submitted August (2019).
- 13- Consultant, Newton – Musharafa / UK-Egypt Fund, “Integrated Green Utilities: food-water-energy production for sustainable development of remote communities”, Submitted August (2019).
- 14- Consultant, Newton – Musharafa / UK-Egypt Fund, “Novel Tri-Hybrid Desalination System powered by Hybrid Renewable Energy with Zero Brine Liquid Discharge”, Submitted August (2019).
- 15- Co-PI (Egypt) “A Novel Solar Driven Hybrid Liquid Desiccant Air Drying/ Distillation System: Design and Performance Assessment”, ASRT bilateral research proposals with the National Natural Science Foundation of China, Submitted June (2019).
- 16- PI (Egypt) “Integrated flexible Systems for monitoring Mediterranean Aquifers and the reclamation from environmental Pollution and Salt intrusion for irrigation and food production – SERAPIS” Accepted Pre-Proposal for EU Funding (PRIMA), Full proposal submitted (2019).

Completed

- 17- Co-PI, Newton – Musharafa / UK-Egypt Fund, “Renewable Energy Driven Hybrid Desalination System for Remote Areas (RE-RO-MD)”, (2019)
- 18- Co-PI “Solar-Greenhouse-Desalination System that Grows its Energy and Irrigating Water Demand”, STDF-NCP/FA/014/1/1, (2015).
- 19- WP#12 Leader; Multipurpose Applications by Thermodynamic Solar (MATS), FP7-ENERGY-2010-2, grant No. 268219, 2010-2013, Design and Simulation of Solar Power and MED desalination Plant, EU contribution.
- 20- P.I. of the project “Innovative Renewable Energy (RE) Driven – Multi-Stage Flash (MSF) System with Salts Precipitator and Nano Filtration (NF) Feed Water pre-treatment (RE-NF-MSF), contract # RDI - C2/S1/148 (2008/2010).
- 21- P.I. (Egypt Side) of the project “Development of Stand Alone – Solar Driven – High Performance – Multi- Stage Flash Desalination System (Solar-HP-MSF)” (EGY-08-965), jointly with Technische Universität München (TUM), co-financed by German – Egyptian Research Funds (GERF), (2008/2009).
- 22- P.I. (Egypt Side) of the project “Autonomous desalination system concepts for sea water and brackish water in rural areas with renewable energies – potentials, technologies, field experience, socio-technical and socio-economic impact (ADIRA), contract # ME8 – AIDCO – 2001 – 0515 - 59610 (2003/2007). In coordination with Fraunhofer Institute of Solar Energy Systems (ISE) and other countries.
- 23- P.I. (Egypt Side) of the project “PV and Thermally driven small scale, stand alone desalination system with very low maintenance needs (SMADES), contract # ICA3 – CT – 2002 - 10025 (2002/2005). In coordination with Fraunhofer Institute of Solar Energy Systems (ISE) and other countries.
- 24- P.I. (Egypt Side) of the project “Coordination Action for Autonomous Desalination Units based on Renewable Energy Systems (ADU-RES), INCO Program, INCO – CT – 2004 - 509093 (2004-2007).

Masdar Institute – Funded Projects

- 25- PI of the MIRSG project “Experimental Study of Newly Developed versus Conventional Membrane and Pre-Treatment Systems (2009/2011).
- 26- PI of the MITEI project “High Throughput Desalination Using Functionalized Magnetic Fine Particles, (2011-2013). PI (MIT): Dr. T. Alan Hatton.
- 27- Co-PI of the MITEI project: Nano Engineered Surface and Coating Technologies for High Efficiency Thermal Desalination, PI (MIT): Kripa K Varanasi.

Doosan Heavy Industries

- 28- P.I. of the project “High Performance MSF (HPM) Technology; (MSF-OT) & (NF-MSF), 2008-2009.

Higher Education Enhancement Project Fund (HEEPF), Egypt

- 29- P.I. of the project “Development of a University Education / Industrial Training Program in Desalination Technology Using Conventional & E-Learning”, Project # C / 096 / H0 (2005-2006).

King Abdul Aziz University, Jeddah (KSA)

- 30- Co PI of the Project, “Design and Simulation of 1.0 m³/day MSF-OT & MSF-BR desalination unit”, project No. 423/111 (2002-2004).
- 31- Co PI of the Project, “Design and Construction of a New Integrated Greenhouse System: Self Sufficient of Energy & Irrigating Water”, project No. 108/1423 (2002/2004).

USA-Egypt Universities Cooperation projects (FRCU)

- 32- Consultant in the project, "Analysis of Flat Plate & Vee-Trough Solar Air Heaters", (Project-FRCU - 82007), (1987).
- 33- Consultant in the project, "Energy Conservation in Process Industries", (Project-FRCU MS/842089), (1987).

Submitted (No Success)

- 34- **Partner PI**, "Mediterranean support centre platform to foster innovation and commercialization in sustainable farming systems, WATER management and FOOD value chain (WATEFOOD), EU PRIMA Pre-Proposal; Partners; Spain, Portugal, Tunisia and Egypt (2018)
- 35- **PI**, "Novel Tri-Hybrid Desalination System powered by Hybrid Renewable Energy with Zero Brine Discharge, STDF (2017)
- 36- **PI**, Green Complex for the Sustainable Development of Remote Desert Communities: tackling challenges at the water-food-energy nexus, STDF (2017)
- 37- **Partner PI**, "Benefits of WATER-enERGY Nexus in the Mediterranean region to promote socioeconomic development based on establishing an innovation framework (WATERGY), ENI CBC MED Program – EU (2018)
- 38- **Partner PI**, Erasmus+, "Global Conventional and E-Learning Program of Water, Energy and Food Nexus - Egyptian Country/WEFO-EC" EU-H2020 (2018)
- 39- **Partner PI**, "PULSating flow Electro Dialysis for irrigation WATER supply and Energy efficient Retentate treatment to Zero Liquid Discharge", EU (H2020 – PRIMA), Pre-proposal (2018)
- 40- **Partner PI**, "Integrated flexible system for the simultaneous production of fresh water, power and soil conditioners from renewable sources", EU (H2020 – PRIMA), Pre-proposal (2018)
- 41- **PI**, "Research, Development and Innovation for MATS Plant's High Performance & Sustainability; ASRT (2018)
- 42- **PI**, "A Novel Solar Driven Adsorption Thermal Vapor Compression (AD-TVC) Desalination System with Forward Osmosis (FO) Pretreatment", STDF (2018)
- 43- **PI**, "Green Complex for Sustainable Development of Remote Desert Communities: tackling challenges at the water-food-energy nexus", UK-Egypt (2018)
- 44- **PI**, "Novel Tri-Hybrid Desalination System powered by Hybrid Renewable Energy with Zero Brine Discharge", STDF (2017)

List of Supervised M. Sc. & Ph. D, Thesis

Alexandria University (Egypt)

Completed Thesis

(Main Advisor)

- 1- M. Sc. (1984) “Temperature Effects on CANDU-Reactor Calculations “, Makarem Hussain, Nuclear Eng. Dept.
- 2- M. Sc. (1987) “Influence of Prandtle Number and Boundary Conditions on Natural Convection Heat Transfer in vertical and Inclined Fluid Layers “, Gamal Al-Refaie, Mechanical Eng. Dept.
- 3- M. Sc. (2002) “Thermal performance and design of reciprocating air-cooled chillers”, Mohammad Khamees, Mech. Eng. Dept.
- 4- M. Sc. (2003) “Recycling of Agriculture Residues for Manufacturing Food Refrigerators Thermal Insulation Panels”, Ahmad Gelany, Agriculture Eng. Dept...
- 5- M. Sc. (2004) “Transient Analysis of a New Humidification-Dehumidification Solar Still”, Ahmad Ghazy, Mech. Eng. Dept.
- 6- M. Sc. (2004) “Simulation of Hybrid Solar/wind Power & Desalination Complex in Remote Area” Ahmad Ismael. Electrical Eng. Dept...
- 7- **Ph. D. (2006)** “Experimental Study of Flash Evaporation in Superheated Water Jet”, Adel Al-Feqee, Mech. Eng. Dept.
- 8- M. Sc. (2006) “Heat transfer inside finned Concentric Cylinders” Mohammad Haseeb, Mech. Eng. Dept.
- 9- M. Sc. (2008) “Heat & Mass transfer in Furnaces using CFD codes” Ahmad Farag, Mech. Eng. Dept.
- 10- M. Sc. (2008) “Heat & Mass transfer in AC using CFD codes” Emad Ragab, Mech. Eng. Dept.
- 11- **M. Sc. (2008)** “Performance of small RO unit” Mohammad Amin, Mech. Eng. Dept.
- 12- **M. Sc. (2010)** “CFD Study of fired furnace of industria boiler” Mohammad Shawqi, Mech. Eng. Dept.
- 13- **Ph.D. (2013)** “Experimental and Numerical Study on Natural Convection inside Rectangular Air Cavity with Descrete Heating”, Emad Hassan Ragab, Mech. Eng. Dept.

(Co-Advisor):

- 14- M.Sc. (2017) “Development of a Novel Solar Driven Agriculture Greenhouse: Self Sufficient of Energy and Water Demand” Alaa Salah, Mech. Eng. Dept..

E-JUST-Env. Eng. Dept., Water Resources

Completed Thesis

(Main advisor):

- 15- **Ph.D. (2020)**, “ Assessment of the Morphological Problems of the Northern Coast of Sinai Peninsula with Elaborating Unconventional and Sustainable Solutions using Geospatial Tools, Physical and Numerical Modeling), Karim Adel Ahmed Nassar
- 16- **Ph.D. (2020)**, “Experimental and Numerical Study of the bridges piers configuration effect on local scour “, Hewida Mohammed Omara
- 17- **Ph.D. (2020)**, “Treatment of ammonia rich wastewater via novel technologies “, Sherif Ahmed Ismail
- 18- **Ph.D. (2020)**, “Application of Remote Sensing for Assessment of Evapotranspiration, Water Uses and Irrigation Performance in the Nile Delta “, Ayat Elnemer Abd Elwahab

- 19- M.Sc. (2020), “Numerical Study of the Climatic Environmental Conditions inside Agriculture Greenhouses”, Kabir Abdullah

On Going Thesis

- 20- **Ph.D. (2020)**, “Hydrodynamic Performance of Innovative Suspended Semicircular Breakwater for Protection of the Northern Egyptian Coast”, Ahmed Abd El Khalek Mostafa Abozaid
- 21- **Ph.D. (2020)**, “Investigation of Morphological changes and bank erosion patterns of Damietta branch of Nile River, Reham A. Aborahma
- 22- **Ph.D. (2020)**, “An Integrated Study of long-term Shoreline Problems and Sustainable Solutions of Damietta Coast, Egypt”, Mohammed Esmail Esmail Ahmed
- 23- **Ph.D. (2020)**, “Impact of Hazardous Landfill Leachate on the Geotechnical Properties of Soil “, Safia Mohamed Hussein
- 24- **Ph.D. (2022)**, “Enhancing the resilience of water distribution systems using optimization techniques” Mohamed Reyadh
- 25- **Ph.D. (2023)**, “Energy Efficiency Improvement in Heritage Building”, Rehab Ismail

E-JUST-Energy Resources (Co-Advisor)

- 26- **Ph.D. (2021)**, “Integrated Solar Still with Multi Effect Humidification De-Humidification System Powered by Solar Concentrator and Solar PV/T system”, Amir Khalifa Mohamed.
- 27- **Ph.D. (2022)**, “Solar Driven Tri-Hybrid generation of Electricity, water and cooling” Ayman Osama Abdelhay
- 28- **Ph.D. (2023)**, “Solar Driven Mechanical Vapor Compression desalination system with Nano Filtration pretreatment” Mohamed Farahat

Masdar Institute (UAE)

Completed Thesis (Main Advisor)

- 29- Techno-economical study of Innovative High Performance MSF system, M.Sc. M. El-Hamahmy, (2011).
- 30- CFD Study of Demisters for MSF thermal desalination Plants, M.Sc. Ashraf Hassania, (2011).
- 31- Integrated solar still with Humidification – Dehumidification System, M.Sc. Nikita Jayswal, (2011).
- 32- Transient Analysis of Agriculture Greenhouse Self Sufficient of Energy & Water’, M.Sc., Tesfaldet Yohannes, (2013)

Completed Thesis (Co-Advisor)

- 33- Sulfated Cellulose Preparation, Characterization, and Potential Application in Water Treatment M.Sc Maitha Al Kaabi, (2012).

On Going Thesis (Co-Advisor)

- 34- Numerical study of solar driven membrane Distillation, **Ph.D., Bader Bin Ashoor**, Fellow at Aachen Univ. (Germany), (expected 2015).

Other Universities

Completed Thesis (Co-Advisor)

- 35- M. Sc. (1996) “Evaluation of a Patented Combined Water Purification and Power Generation Plant “, Fahad Al-Khalidi, Civil & Environmental Eng., King Fahad Univ. Of Petroleum & Minerals (KFUPM), KSA.

- 36- M. Sc. (2002) “Study of Water Desalination By Solar Energy Using Humidification-Dehumidification Processes”, Ahmad Soliman, Eng. Science Dept, Petroleum & minerals College, Suzie Canal University, Egypt.
- 37- M. Sc. (2002) “Thermal Analysis and Economical Comparison between Pyramid and Single Slopped Solar Stills Configurations”, Abdul-Hakeem Hassabou, Ein Shams University, Egypt.
- 38- **Ph. D. (2005)** “Numerical Simulation of Thermal Desalination Processes”, Abdul-Naser Mabrouk, Eng. Science Dept, Petroleum College, Suzie University, Egypt.
- 39- M. Sc.(2006) “ Solar Distillation in Perforated Tubes with Solar Concentrator”, Ahmad Amer, Mech. Dept., Arab Academy of Technology, Alexandria, Egypt
- 40- M. Sc.(2006) “ Solar Distillation in Perforated Tubes with Solar Collectors”, Ahmad A. Aziz, Mech. Dept., Arab Academy of Technology, Alexandria, Egypt
- 41- M. Sc. (2011) “Utilization of Forward Osmosis for Desalination” Mohammad Radwan, Mech. Eng. Dept., South Vally Univ., Aswan, Egypt.
- 42- M. Sc. (2015) “Integrated Solar Still – Muti Effect Humidification De-Humidification System with Built-in Solar Absorber system”, Muhammad Mustafa, Mech. Eng. Dept., American University of Sharjah (UAE).

Additional Supervision: Supervision the work of post doctors, research engineers, research Assistants. Head of faculty team(s) of assistant professors, associate professors and full professors in different research projects.

Teaching/Training Courses

- 1- Desalination Processes and Technologies
- 2- Thermodynamics I & II
- 3- Heat Transfer and Process Heat Exchangers,
- 4- Boiling, Condensation & Two Phases Flow
- 5- Thermal & Nuclear Power Plants
- 6- Renewable Energy Applications

Papers & Projects Reviewer

Reviewer of over 50 different scientific papers & projects in the area of desalination in different national and international journals and institutions, including:

- 1- MIT (USA)
- 2- Desalination Journal (EU),
- 3- Desalination & Water Treatment (EU)
- 4- Chemical Engineering J. (USA),
- 5- Energy Journal (USA),
- 6- Energy Conversion and Management (USA)
- 7- J. of Fac. of Eng. (Alex. Univ., Egypt),
- 8- Journal of Kuwait University (Kuwait),
- 9- J. of King Abdul Aziz Univ. (KSA)
- 10- King Saud University (KSA)
- 11- King Saud City of Science and Technology (KSCT)
- 12- Imam Mohammad Univ. (KSA)

Honors & Awards

- Ministry of Water & Irrigation and Al_Shrouk Academy (Egypt); Prize for "Non-Conventional Water Resources", 2008.

- International Desalination Association, IDA, Technical Research Award, 1995.
- Ontario Graduate Fellowship, Government of Ontario, Canada (1980).
- Top of Class Award, Alexandria Univ., 1972.
- Keynote speaker and session chairman of many conferences, workshops and seminars.
- Coordinating many industrial seminars, workshops and conferences
- Chairman of AQUA-TECH 2001- Conference, Cairo (Feb. 2001),
- Interview with the Egyptian TV Channel, Local Alex. Channel 5, in Desalination & Solar Energy
- Interview with News papers of Gulf, Al-Bayan and Sharjah TV (UAE), in Solar Desalination Feasibility
- Invited Speaker on Energy Conservation Technology, Energy Research Center, Bahrain Univ., Bahrain
- Invited Speaker on Desalination as Strategic Alternative for water Security in; i- Engineers Syndicate, ii- Sporting Club, iii- Rotary Club, iv- Fac. of Engineering Graduate Association.

Consultation and Technical Activities

Different engineering consultation activities in design, R&D, training, and feasibility study of many industrial and engineering systems, including: -

- i) Feasibility study to the alternative industrial cooling system (85,000 m³/hr) to the Petrochemical Industries Co. (PIC), (Kuwait),
- ii) Feasibility study of building a small solar desalination unit in Sinai to EU protectorate Project, (Egypt),
- iii) Technical support to UNESCO project in “Energy & environment” to establish industrial energy conservation plan for Alexandria Industrial Sector, (Egypt),
- iv) Technical & economical pre-feasibility study to GCC marketing Group to convert Municipal Solid Waste (MSW) to Energy, Compost and Desalinated Water (for Ajman & Sharjah-UAE, Doha-Qatar and Riyadh-KSA).
- v) Jeddah Industrial Chamber (KSA), Member of Newly projects Committee, studying projects for the manufacturing of desalination plant's spare parts and supports.
- vi) Alexandria Court (Egypt), assessment of the technical aspects & transpiration damage of 300 m³ / day, Reverse Osmosis Desalination Plant.
- vii) Collide (private industry - Egypt): Feasibility study of the utilization of Diesel Engine (350 kWe) waste heat for clay minerals drying.
- viii) Nuclear Safety Commission (Egypt): Member of the design group, thermal hydraulic section, to establish the acceptable criterion for safe power plants. Presenting seminars; on power plants process design. Review and update IAEA & American codes to suit safety demands.
- ix) Organize & carry out different industrial training courses for Petro & Petrochemical, Fertilizing, power plants industries (Egypt, Kuwait, Saudi Arabia, UAE, Libya) in pumps, Gas turbines, Desalination, Heat Exchange Equipment, Power plants, ...etc,
- x) Organization and Presenting a series of technical seminars for energy managers and engineers in the area of energy conservation, combined cycle plants, waste heat recovery technology and improvements of boilers efficiency.

Membership

- Co-Founder & X-President of the Egyptian association for Water & Energy (EWE)
- Co-Founder & X-Board Member of Alexandria Desalination Center (ADST)
- X-Member of the American Society of Mechanical Engineers (ASME).
- X-Member of the International Desalination Association (IDA)
- X-Member of the European Desalination Society (EDS)

PUBLICATIONS

Patents

(Filed)

- 1- **Hassan E. S. Fath** “High Performance MSF and Integrated MSF-MED process & Apparatus, USA Provisional Patent No: 61341285 – 032910 (2010).
- 2- **Hassan E. S. Fath**, “Combined Multi-Stage Flash - Multi Effect Distillation System”, Canadian Patent, filed No. 2-190-299, (1996).
- 3- **Hassan Fath** “A Novel Process & Device of Solar Driven and High-Performance Adsorption Thermal Vapor Compression desalination system with Nano Filtration / Forward Osmosis pretreatment (Solar-HP-NF/FO-AD-TVC)” National (ASRT-Egypt), No. 926 (2018)
- 4- **Hassan Fath** and Ahmed Rizk “Process and Device of Integrated Adsorption Cooling and Desalination systems for the production of cooling, fresh water and Salts, National (ASRT-Egypt), Filing date 23/9 (2018)
- 5- **Hassan E. S. Fath** “A Novel Process & Apparatus of Multi Stack - Flash Split Desalination with Adsorption Thermal Vapor Compression (MS-FS-AD-TVC) National (ASRT-Egypt), No. 589 (2019)

Books/Scientific reports

- 1- **Hassan Fath**, “Desalination Technology”, Book in Arabic, Al-Dar Al-Jameiah, Egypt (2001).
- 2- **Hassan Fath**, Co-author of the Encyclopedia of Desalination & Water Recourses (DESWARE) (2001).
- 3- Abdel Nasser Mabrouk, **Hassan Fath**, Mohamed Darwish, Hassan Abdulrahim. Techno-economics of hybrid NF/FO with thermal desalination plants. **Book chapter**, book title: Desalination Updates, ISBN 978-953-51-4239-3, (2015).
- 4- Over 30 Scientific reports were issued to different institutes, utilities and engineering companies and over 20 R&D proposals were submitted to different funding agencies.
- 5- **Hassan Fath** “Desalination & Agriculture Greenhouse”, **Book Chapter** in “Unconventional Water Resources and Agriculture in Egypt”, Springer (2018).
- 6- **Hassan Fath**, “Desalination Processes and Technologies, Q&A”, Book, to be published (2019).

Published Journal Papers

Desalination & Energy Technologies

1. Kabir Abdullahi, Alaa Salah, **Hassan Fath**, Solar Driven Agricultural Greenhouse Integrated with Desalination System; Energy-Water-Food Nexus, Applied Thermal Engineering (under review, submitted 21st April 2019)
2. Amir Mahmoud, **Hassan Fath**, Shinichi Ookwara and Mahmoud Ahmed “Influence of partial solar energy storage and solar concentration ratio on the productivity of integrated solar still/humidification-dehumidification desalination systems”, Desalination 467, 29-42 (2019)
3. M. Ahmed, A. Amin and **Hassan Fath**, “Modelling of Solar Power Plant for Electricity Generation and Water Desalination”, Journal of Solar Energy Engineering: Transactions of ASME, SOL-18-1143 (2018)
4. Amir Mahmoud, **Hassan Fath**, and Mahmoud Ahmed “Enhancing the performance of a solar driven hybrid solar still/ humidification-dehumidification desalination system integrated with Solar concentrator and photovoltaic panels”, Desalination 430, pp 165-179 (2018)

5. Ashraf Hassan, **Hassan Fath**, “Solar Driven Dual-purpose plant with Hybrid Desalination System for Harsh Desert Farms”, *Desalination and Water Treatment Journal*, (2017) doi:10.5004/dwt.2017.21384.
6. Alaa H. Salah, Gasser E. Hassan, **Hassan Fath**, Mohamed Elhelw and Samy Elsherbiny” Analytical Investigation of Different Operational Scenarios of a Novel Greenhouse Combined with Solar Stills”, *Applied Thermal Energy*, V 122, pp 297-310 (2017).
7. Alaa H. Salah, Gasser E. Hassan, Mohamed Elhelw, **Hassan Fath**, Samy M. Elsherbiny, “Performance Improvement of Roof Transparent Solar Still Coupled With Agriculture Greenhouse”, *Journal of Renewable Energy and Sustainable Development (RES D)* Vol 3 Issue 1, Feb (2017) - ISSN 2356-8518, <http://dx.doi.org/10.21622/RES D.2016.02.2.096>.
8. M. K. Mansour and **Hassan Fath**, “A new and practical epsilon-NTU correlation for the humidification process under different Lewis number”, *Desalination*, No. 395, pp 72–78, (2016).
9. Gasser E. Hassan, Alaa H. Salah, Mohamed Elhelw, Amany Hassan, Khalid M. Saqr and **Hassan Fath**,” Optimum Operational Performance of a New Stand-Alone Agricultural Greenhouse with Integrated-TPV Solar Panels”, *Solar Energy*, V 136, pp 303-316 (2016).
10. Mohamed Al-Hamahmy, **Hassan E.S. Fath**, Khalil Khanafer, “Techno-economical simulation and study of a novel MSF desalination process”, *Desalination* 386, pp 1–12 (2016).
11. A. Al Tarabsheh, I. Etier, **H. Fath**, A. Ghazal, H. Abu Tin, Y. Morci, M. Asad, A. El Haj, “Performance of Photovoltaic Cells in Photovoltaic Thermal (PVT) Modules”, *J of IET Renewable Power Generation* doi: 10.1049/iet-rpg.2016.000, 1www.ietdl.org (2016),
12. Ahmed Ghazy and **Hassan E.S. Fath**, “Novel solar desalination system of combined solar still and humidification-dehumidification unit”, *Heat & Mass Transfer* Heat Mass Transfer, DOI 10.1007/s00231-016-1761-1 (2016),
13. Adewale Giwa, **Hassan Fath** and Shadi Hasan “Humidification-Dehumidification desalination process driven by photovoltaic thermal energy recovery (PV-HDH) for small-scale sustainable water and power production”, *Desalination*, 377 pp 163–171(2016),
14. Ashraf S. Hassan, **Hassan E.S. Fath**, Mohamed Darwish, Hassan Abdulrahim “Dynamic performance of vacuum membrane distillation system”, *J. of Desalination and Water Treatment*, pp 1-10 (2015) (doi: 10.1080/19443994.2015.1099330)
15. Abdelnaser Mabrouk and **Hassan Fath** “Technoe-conomic study of a Novel Integrated Thermal MSF- MED Desalination Technology”, *Desalination*, V. 371, pp 115–125, Ms. No. DES-D-15-00306R2 (2015).
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