



Innovation Driven Desalination

May 30-June 1, 2022
Ritz-Carlton Hotel, Jeddah
Saudi Arabia

HELD UNDER THE PATRONAGE OF



وزارة البيئة والمياه والزراعة
Ministry of Environment Water & Agriculture

Hosted by H.E. Eng. Abdullah Ibrahim Al-Abdulkarim, Governor of SWCC

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International Specialty Conference on Innovation Driven Desalination

As global desalination industry leaders, the Saline Water Conversion Corporation (SWCC) and the International Desalination Association (IDA) are organizing the first of its kind International Specialty Conference on Innovation Driven Desalination at the Ritz-Carlton Hotel in Jeddah between May 30 - June 1, 2022.

Pre-Conference workshop May 29 @ 14:00, Ritz Carlton Hotel

The program also includes a pre-conference workshop on the Jubail Brine Mining Project for Salt and Bromine Production on May 29.

May 30- June 1, Conference Program, Ritz Carlton Hotel:

Held under the patronage of the Ministry of the Environment, Water and Agriculture, Kingdom of Saudi Arabia, and organized by the IDA- SWCC-DTRI, we will discuss the latest achievements and innovation trends in the desalination industry. A large portion of the world's drinking water is produced from desalination.

The conference offers participants a toolbox of the latest ideas, trends, and scientific discoveries needed to secure climate-change resilient water supplies for public and industrial use on a global scale. By harnessing cutting-edge technologies and scientific advancements which yield more reliable, affordable, and environmentally friendly desalination, we can help provide water for all.

Over three days, delegates will engage in 10 sessions with 30 technical presentations by world-class speakers from over a dozen countries and five continents. The conference also includes five workshops on hot topics participants will be offered a site visit to the newly commissioned Shoaiba Magnesium Permeate Enrichment Facility on the June 1st. Using SWCC's patented desalination technology, this facility extracts magnesium from brine. It applies it to supplement the drinking water produced by the SWCC's Shuaibah seawater desalination plant. On June 2nd, participants are offered a plant tour of Rabigh 3 SWRO Desalination Plant by ACWA Power and SBCC.

This landmark conference event is a unique opportunity for an in- person exchange of transformative ideas and scientific knowledge that have the potential to drive the desalination industry towards a prosperous and sustainable future.

Messages from the Conference Hosts

**H.E. Eng. Abdulrahman
Abdulmohsen A. AlFadley,**
Minister of MEWA



On the behalf of the Ministry of the Environment, Water and Agriculture I would like to welcome you to Saudi Arabia for the first of its kind International Specialty Conference on "Innovation Driven Desalination". This landmark conference is a unique opportunity for in- person exchange of transformative ideas and scientific knowledge that have the potential to drive the desalination industry towards a prosperous and sustainable future. I hope that this premiere international event will offer to you a great opportunity to enhance your knowledge in the latest advancements and innovation trends in desalination technology and science. While visiting us here, please get acquainted with the rich cultural heritage and historic traditions of our beautiful coastal city of Jeddah – the gateway to innovation of Saudi Arabia.



**H.E. Eng. Abdullah Ibrahim
Al-Abdulkarim,**
Governor of the Saline Water Conversion
Corporation



Dear Innovation in Desalination Conference Participant, SWCC would like to extend our heartworm welcome to the first International Specialty Conference on Innovation Driven Desalination in the crown jewel of Saudi Arabia - the diverse and multicultural city of Jeddah. We are pleased and honored to join efforts with the Inter- national Desalination Association (IDA) to host this premiere desalination industry event which will provide a unique forum for you and your peers to exchange and brainstorm ideas that will propel innovation, creativity and disruptive advancements in this rapidly growing field. With presenters from 14 countries and 5 continents, the "Innovation Driven Desalination" conference is truly global worldwide knowledge exchange event that captures the essence of the creative spirit of the desalination industry. Enjoy your stay in Saudi Arabia.

Message from DTRI

Dr. Ahmed Al Amoudi, Conference Chairman,
and **Eng. Nikolay Voutchkov**, Chairman of the
Technical Program Committee



It is my great pleasure to welcome you to the International Specialty Conference on Innovation Driven Desalination in the City of Jeddah – well known for its unique charm and warm hospitality. We are very grateful to our partners of IDA for their superb efforts and support to create an outstanding international event that

would provide a valuable contribution to the advancement of the desalination industry worldwide.

This three-day event will include presentations of world-class speakers on the latest developments in key desalination industry topic areas, of recent scientific and technology breakthroughs, and of new trends aiming at breaking the cost and energy barriers of desalination. The afternoon of the third day of the conference will include visit of one of its kind full-scale plant designed to selectively extract magnesium from brine to supplement the desalinated water of the SWCC Shuaiba desalination plant. The key focus areas of the conference: energy and cost reduction; brine mining and advanced membrane science and technology are reflective of the desalination industry strive for excellency and accelerated growth combined with sustainability and drought resilience. Enjoy your stay in sunny Jeddah and thank you for the opportunity to host you in Saudi Arabia.

Dr. Ahmed Al Amoudi
Director General, DTRI of SWCC

Eng. Nikolay Voutchkov
Senior Expert, DTRI

Message from IDA



Mr. Carlos Cosin, IDA President, and
Ms. Shannon McCarthy, IDA Secretary General



Dear Distinguished Delegates,

On behalf of the Board of Directors of IDA, it's our sincere pleasure to welcome you to the First Specialty Conference on Innovation Driven Desalination held under the patronage of H.E. Minister Al Fadley, the Minister of Environment, Water, and

Agriculture of the Kingdom of Arabia, and hosted by H.E. Eng. Abdullah Ibrahim Al-Abdulkarim, Governor, Saline Water Conversion Corporation.

It has been our pleasure to jointly organize this conference with the dynamic technical team at the Desalination Technology Research Institute (DTRI) of SWCC, with leadership from our colleagues Dr. Ahmed Al Amoudi, Eng. Nikolay Voutchkov of DTRI, and the IDA Technical Program Committee led by Eng. Borja Blanco. As well, our colleagues at SWCC Ms. Manal Al Amadi and Mr. Todd Leyland.

This conference provides a unique forum to share knowledge on water production costs, innovative high recovery SWRO membrane solutions, digitalization, AI, brine mining and zero-liquid discharge, renewable energy-driven desalination systems, and much more.

Over four decades, innovation in desalination technology has broken barriers in flux, energy consumption, scale, and the industry has shown flexibility to adapt to the new contract and financial models. IDA commends these transformations and will continue supporting innovative desalination. The partnership with SWCC and DTRI is part of our mission to expand IDA activities with stakeholders to support technical evolution for a better world.

Sincerely,

Mr. Carlos Cosin
IDA President

Ms. Shannon K. McCarthy
IDA Secretary General

Technical Committee

Conference Chairman:



Dr. Ahmed S. Al-Amoudi, Director General

Conference Technical Program Committee Chairman:



Eng. Nikolay Voutchkov, Senior Expert

Conference Technical Program Committee:



Dr. Christopher Fellows, Senior Expert



Mr. Fritz Alt, Senior Expert



Dr. Basel Al Sharkh, Senior Expert



Dr. Seungwon Ihm, Senior Expert



Eng. Youngwook Yoo, Senior Expert



Eng. Borja Blanco, CEO, Aqua Advise, Spain



Eng. Devesh Sharma, CEO, Aquatech, USA



Eng. Miguel Angel Sanz, Director of Strategic Development,
Suez, France



Eng. Silvio Oliva, CEO, Fisia Italmimpianti S.p.A., Italy



Eng. Victor Verbeek, General Manager for Australia & New
Zealand Regional, Toray Membrane Australia



Dr. Domingo Zarzo, Technical and R&D Manager, Sacyr Water,
Spain

Day 0

Sunday, May 29th at Ritz Carlton Hotel

Pre-conference Workshop (Special registration required)

- 13:00-13:15** **Ocean Brine Mining for Sodium Chloride and Bromine**
Introductions: Dr. Ahmed Al Amoudi, Director General, DTRI/SWCC, KSA
- 13:15-13:40** **Overview of DTRI System for Brine Mining of NaCl and Br**
Program Moderator & Speaker: Eng. Nikolay Voutchkov, Senior Expert, DTRI/SWCC, KSA
- 13:40-14:30** **Scope of Work of 2 Million Tons/Year NaCl and Br Project**
Speakers: Dr. Seungwon Ihm, & Dr. Christopher Fellows, Senior Expert, DTRI/SWCC, KSA
- 14:30-15:00** **NF, SWRO & UHPRO Systems w/ Turbocharger**
Speakers: Dr. Roman Boda, Plant Services Engineering Manager, Hydranautics, USA & Mr. Casey Bly, Vice President, FEDCO, USA
- 15:00-15:30** **Coffee Break**
- 15:30-16:00** **NF System**
Speaker: Dr. Mohammad Soleiman, Senior Researcher, Suez, UAE
- 16:00-16:30** **Membrane Brine Concentration System**
Speaker: Mr. Stephen Vitkauskas, CFO, FTS, USA

- 16:30-17:00** **Brine Crystallization System**
Speaker: Mr. David Ciszewski, Senior Process Manager,
Suez, Czech Republic
- 17:00-17:30** **Economics of Brine Mining for Sodium Chloride**
Speaker: Dr. Basel Abusharkh, Senior Expert, DTRI/SWCC,
KSA
- 17:30-18:00** **Questions & Answers Session**
- 18:00** **Workshop Adjourned**

Day 1

Monday, May 30th

Morning Session

08:00-08:30

Welcome Remarks

Welcoming Remarks:

- **Dr. Ahmad S. Al Amoudi**, Director General, DTRI/SWCC
- **Ms. Shannon McCarthy**, Secretary General, International Desalination Association (IDA)

08:30-09:00

Plenary Keynote Presentations:

- **Dr. Miriam Balaban**, Secretary General of European Desalination Society (EDS), "**Milestones of Innovation in Desalination**"
- **Mr. Bernard Koh**, Assistant Chief Executive Director of Singapore Public Utility Board (PUB), "**Singapore's Journey in Desalination**"
- **Dr. Abdulrahman Habib**, Deputy Research Director, National Center for Artificial Intelligence (NCAI) at SDAIA, "**Innovation: Realizing the Future, Today**"

Theme 1.1: Breaking the Cost and Energy Barriers of Desalination

Session 1.1.1 – Innovation in Pretreatment for Seawater Desalination

- **Session Chair:** Mr. Thomas Altmann, Executive Vice President, ACWA Power
- **Session Co-Chair:** Dr. Seung-Hyun Kim, Professor, Kyungnam University, South Korea

09:00-09:30 **Optimized Seawater Pretreatment for Biofouling Control at SWRO Plants**

Author and Presenter: Dr. Harry Polman, H2O Biofouling Solutions B.V., Netherlands

09:30-10:00 **The Effectiveness of Ceramic Ultrafiltration as a Pretreatment for SWRO at Tuas Spring, Singapore**

Authors: Mr. Ali Kalantar, Mr. Gilbert Galjaard, Mr. Jonathan Clement, Mr. Isaac Ng, Mr. Michael Shaw, Mr. Aatman Shah, Mr. Jonathan Pressdee, Nanostone Water Inc., USA
Presenter: Mr. Aatman Shah, Business Development Manager, Nanostone Water Inc., USA

10:00-10:30 **Coffee Break**

10:30-12:30 **Workshop 1: Enabling Research & Innovation in the Science Lab**

Workshop Leader: Dr. Mohamed Al Namazi, Deputy Executive Director, DTRI-SWCC, KSA

10:30-11:00 **Clean-In-Place System for Cartridge Filters in Ras Al Khair Desalination Plant**

Author and Presenter: Mr. Abdulrahman Abutaleb, Senior Engineer, DTRI/SWCC, KSA

11:00-11:30 **Innovative Backwashing System of Dual Media Filters**
Authors: Dr. Byung Sung Park, Mr. Abdulrahman Abutaleb, Eng. Nikolay Voutchkov, Dr. Ahmed Al Amoudi, DTRI/SWCC, KSA
Presenter: Dr. Byung Sung Park, Senior Expert, DTRI/SWCC, KSA

11:30-12:00 **The UF-FO-MD Hybrid System for Resources Recycle from Wastewater using SWRO Brine as FO Draw Solution**
Authors: Dr. Sheng Li, Dr. Mohammed Namazi, DTRI/SWCC, KSA
Presenter: Dr. Sheng Li, Senior Expert, DTRI/SWCC, KSA

12:00-13:00 **Lunch Break**

Day 1 – Monday, May 30th

Afternoon Session

13:00-15:00 **Workshop 2: Innovation in Desalination to Reduce Environmental Impact**
Workshop Leaders: Dr. Omar Osman Aga, Vice Dean, Imam Abdulrahman bin Faisal University, Eng. Hidalgo Manuel, Team Leader, Parsons Engineering, Eng. Troy Green, Senior Researcher, DTRI-SWCC

Session 1.2: Advances in Membrane Science and Technology

Session 1.2.1 – Innovation in Membrane Technology

- **Session Chair:** Eng. Borja Blanco, CEO, Aqua Advise, Spain
 - **Session Co-Chair:** Dr. Seungwon Ihm, Senior Expert, DTRI/SWCC, KSA
-

- 13:00-13:30** **Scaling-up of Membrane Distillation for Seawater Application**
Author and Presenter: Dr. Seung-Hyun Kim, Professor, Kyungnam University, South Korea
- 13:30-14:00** **Chlorine Resistant, Antifouling TFC-RO Membranes with Vacuum UV Irradiation**
Authors: Dr. Marwa Shalaby, Mr. Heba Abdallah, Mr. Ralph Wilken, Mr. Ahmed Shaban, National Research Centre, Egypt; Fraunhofer Institute for Manufacturing Technologies and Advanced Materials (IFAM), Germany
Presenter: Dr. Marwa Shalaby, Professor, National Research Center, Egypt
- 14:00-14:30** **Development of Membrane for Osmotically Assisted Reverse Osmosis (OARO) and Update for Commercial Project**
Authors: Mr. Takahito Nakao, Toyobo, Japan, Mr. Ersan Özdemir, Hyrec, Turkey, Mr. Nobuyuki Masumoto, Arabian Japanese Membrane Company, KSA
Presenter: Mr. Takahito Nakao, Senior Engineer, Toyobo, Japan
- 14:30-15:00** **New Concept of a Salt free-EDM**
Authors: Mr. Abdulsalam Alhadidi, Mr. Winod Bhikhi, Mr. Ronny van Engelen, Fujifilm, Netherlands
Presenter: Mr. Abdulsalam Alhadidi, Technical Market Support, Fujifilm, Netherlands
- 15:00-15:30** **Coffee Break**

Session 1.2.2 – Digitalization of Desalination

- **Session Chair:** Eng. Nikolay Voutchkov, Senior Expert, DTRI/SWCC, KSA
 - **Session Co-Chair:** Mr. Christos Charisiadis, Innovation & Business Development Manager, Lenntech, Netherlands
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- 15:30-16:00** **Digital Twin of an Innovative, Low Energy and More Sustainable Subsea SWRO Plant**
Authors: Dr. Alexander Fuglesang, FSubsea AS, Norway, Mr. Abdullah Albiladi, DTRI/SWCC, KSA
Presenter: Dr. Alexander Fuglesang, Founder & CEO, FSubsea AS, Norway
- 16:00-16:30** **An Intelligence Collaborative Diagnosis Support System for Desalination Plant PLCs**
Author and Presenter: Mr. Khalid Alsaif, T&I Senior Engineer, SWCC, KSA
- 16:30-17:00** **Modulation Techniques Applied to Medium-voltage Variable Speed Drives - SHE and OPP**
Authors: Mr. Adriano Dias, Mr. Rafael Nardelli, Mr. Joable Alves, WEG Automation, Spain
Presenters: Mr. Joable Alves and Mr. Adriano Dias, Senior Engineers, WEG Automation, Spain

Day 2

Tuesday, May 31st

Morning Session

09:00-09:30 Welcome Remarks

- H.E. Eng. Abdulrahman Abdulmohsen A. AlFadley, Minister of Environment, Water and Agriculture, KSA
- H.E. Eng. Abdullah Ibrahim Al-Abdulkarim, Governor of the Saline Water Conversion Corporation (SWCC), KSA
- H. E. Eng. Mansour bin Hilal Al Mushaiti, Vice Minister of Environment, Water and Agriculture Ministry, KSA
- Mr. Carlos Cosin, President of International Desalination Association (IDA), and CEO of Almar Water Solutions, USA and Spain

09:30-10:30 Keynote Session: Global Innovation & Vision 2030

- Dr. Hammed Al Batchan, Deputy Minister of Innovation, MEWA, KSA
- Dr. Kevin Cullen, Vice President of Innovation & Economic Development, KAUST, KSA
- Dr. Ibrahim bin Mahmoud Babelli, Deputy Minister for Planning, Research, Development, and Innovation Authority, KSA

Theme 2.1: Innovation in Desalination Facility Design and Operation

Session 2.1.1 – Experience with Design and Operation of Innovative Technologies

Session Chair: Eng. Devesh Sharma, CEO, Aquatech, USA

Session Co-Chair: Dr. Alexander Fuglesang, Founder & CEO, FSubsea, Norway

10:00-10:30 **Pilot Testing of Advanced MED Technology for Seawater Desalination and Brine Treatment**
Author and Presenter: Dr. Abdelnasser Mabrouk, Senior Scientist, Qatar Environment and Energy Research Institute, HBKU, Qatar

10:30-12:30 **Workshop 3: Innovation in Energy Reduction & Efficiency**
Workshop Leader: Dr. Omar bin Amira, Assistant Deputy Governor, Development and Operational Performance, SWCC, KSA

10:30-11:00 **Shuaiba NF-MG Plant - Operational Strategy**
Authors: Dr. Seungwon Ihm, Dr. Ahmed Al-Amoudi, Eng. Nikolay Voutchkov, Dr. Youngwook Yoo; Mr. Al-Yaser Jehani, Mr. Khalid Al-Shaikh, Dr. Mohammed Farooque, DTRI/SWCC, KSA
Presenter: Dr. Seungwon Ihm, Senior Expert, DTRI/SWCC, KSA

11:00-11:30 **Coffee Break**

11:30-12:00 **The Importance of Centrifugal Pump in Desalination Process and its Recent Challenges**
Authors: Dr. Moujiddin Iqbal, Dr. Hussam Totah, King Abdulaziz University, KSA
Presenter: Dr. Hussam Totah, Associate Professor, King Abdulaziz University, KSA

12:00-12:30 **Abqaiq Plants (RO) Water Treatment Plant Enhancement**
Author and Presenter: Dr. Mohammed Almugahwi, Water Treatment Engineer, Saudi Aramco, KSA

12:30-13:30 **Lunch Break**

Day 2 – Tuesday, May 31st

Afternoon Session

- 13:30-15:30** **Workshop 4: New Generation of SWRO Membranes**
Workshop Leader: Dr. Tariq Nada, VP Water CTS, ACWA Power, KSA
Co-moderators: Mr. Thomas Altmann, EVP ACWA Power Innovation & New Technology, ACWA Power, Mr. Khaled Almedbel, Business Development Director, ACWA Power, Mr. Mohsen Alsalmi, Executive Managing Officer Portfolio Management, ACWA Power, and Mr. Masumoto Nobuyuki, CTO, Arabian Japanese Membrane Company

Session 2.1.2 – Latest Developments of High Recovery Desalination

- **Session Chair:** Eng. Devesh Sharma, CEO, Aquatech, USA
- **Session Co-Chair:** Dr. Alexander Fuglesang, Founder & CEO, FSubsea, Norway

-
- 13:30-13:55** **High Recovery Reverse Osmosis Water System**
Author and Presenter: Mr. Haytham Abdelfatah, Engineering Manager – Desalination, FEDCO, USA
- 13:55-14:20** **High Recovery Seawater Reverse Osmosis Using “Loose RO” in the Final Stage**
Author and Presenter: Dr. Mohammad Soleiman, Senior Researcher, SUEZ, UAE
- 14:20-14:45** **On the Gaps and Needs to Achieve Ultrahigh Pressure Reverse Osmosis**
Author and Presenter: Dr. Arian Edalat, President, Pacifica Water Technologies, USA
- 14:45-15:15** **Coffee Break**

Theme 2.2: Green Desalination Technologies and Brine Management

Session 2.2.1 – Concentrate Management, Brine Mining and ZLD

- **Session Chair:** Mr. Christos Charisiadis, Innovation & Business Development Manager, Lenntech, Netherlands
 - **Session Co-Chair:** Dr. Christopher Fellows, Senior Expert, DTRI/SWCC
-

15:15-15:40 **Sea4Value Development and Validation of Novel Technologies to Extract Minerals and Metals from Seawater Brines**

Authors: Ms. Naiara Hernández, Dr. Juan Arévalo, Mr. Frank Rogalla, Mr. Víctor Monsalvo, Aqualia, Spain

Presenter: Dr. Juan Arévalo, Innovation and Technology Department, Aqualia, Spain

15:40-16:05 **Energy Recovery Device Deployed in an Ultra-high Pressure Reverse Osmosis ZLD Application: A Case Study**

Authors: Mr. Attia Khater; Mr. David Kim-Hak, Energy Recovery, USA

Presenter: Mr. Attia Khater, Senior Technical Service Manager Middle East, Energy Recovery, USA

16:05-16:30 **Revolution of Innovative Water Solution**

Author and Presenter: Mr. Tariq Algefari, Head of Local Competencies Projects, SWCC, KSA

16:30-16:55 **Approach Towards Green Desalination**

Author and Presenter: Dr. Fritz Alt, Senior Expert, DTRI/SWCC, KSA

Session 2.2.2 – Out-of-the Box Desalination Technologies

• **Session Chair:** Mr. Attia Khater, Senior Technical Service Manager Middle East, Energy Recovery, USA

• **Session Co-Chair:** : Dr. Sangho Lee, Kookmin University, South Korea

16:55-17:20 **World ´s Largest Microbial Desalination Cell Pilot Plant for Low Energy Brackish Water Desalination and Wastewater Treatment**

Author and Presenter: Mr. Juan Arévalo, Innovation and Technology Department, Aqualia, Spain

17:20-17:45 **Innovative Technique for Enhancing the Performance of Emerging Water Desalination Processes**

Authors: Dr. Emad Alhseinat, Mr. Ibrahim Randa, Mr. Alibi Kilybay, Mr. Ibrahim Mustafa, Mr. Al Marzooqi, Faisal Khalifa University; DEWA, UAE

Presenter: Dr. Emad Alhseinat, Assistant Professor, Khalifa University, UAE

17:45-18:10 **Gas Hydrate Desalination Technology: Comparison of Hydrate Formation Kinetics of Methane, Propane, And Carbon Dioxide**

Authors: Dr. Omar Bamaga, Prof. Mohammad Albeirutty, Dr. Iqbal Ahmed, Dr. Hani Abulkhair, Dr. Asim Alsaiari Wafiyah, Mr. Omar Tallab, King Abdulaziz University, KSA; Prof. Praveen Linga, National University of Singapore, Singapore

Presenter: Dr. Omar Bamaga, Associate Professor, King Abdulaziz University, KSA

20:00-22:30 **Conference Dinner**

Day 3

Wednesday, June 1st

Morning Session

08:00 – 08:15 Opening Remarks

Plenary Keynote Presentation

- Dr. Abdulelah Habib, Director CCES (Center for Complex Eng. Systems), M.I.T. - KACST

Theme 3.1: Road-mapping of Desalination Innovation

Session 3.1.1 – Future Desalination Technology Trends

Session Chair: Dr. Omar Bamaga, Associate Professor, King Abdulaziz University-KSA

Session Co-Chair: Dr. Mohammad Soleiman, Senior Researcher, SUEZ, UAE

08:15-08:45 Innovation Trends in the Desalination Industry

Author and Presenter: Eng. Nikolay Voutchkov, Senior Expert, DTRI/SWCC, KSA

08:45-09:15 A Highly Reliable and Resilient Low Energy Reverse Osmosis Design Philosophy

Authors: Mr. Ravi Chidambaran; Mr. Devesh Sharma; Dr. Giancarlo Barassi, Aquatech, USA

Presenter: Mr. Devesh Sharma, CEO, Aquatech, USA

09:15-09:45 **Carbon Footprint of Desalination Processes and the Way Towards Green Desalination System**
Author and Presenter: Dr. Youngwook Yoo, Senior Expert, DTRI/SWCC

09:45-10:15 **Closed Circuit Reverse Osmosis in Sea Water Desalination for High Recovery Low Energy**
Author and Presenter: Mr. Fadi Saleh, Tendering & Innovation Manager, Metito Saudi Limited

10:00-12:00 **Workshop 5: Artificial Intelligence and Innovation in Desalination**
Workshop Leader: Eng. Essam AlBishi, Head of Artificial Intelligence, SWCC, and additional special guests

10:15-10:45 **Coffee Break**

Session 3.1.2 – Road-mapping of the Future of Desalination

- **Session Chair:** Mr. Fadi Saleh, Team Leader, Metito, KSA
- **Session Co-Chair:** Dr. Alexander Fuglesang, Founder & CEO, FSubsea, Norway

10:45 -11:15 **Role of Integrated Membrane Systems in Enhancing Desalination Capacity of KSA and the Need for a Desalination Development Roadmap**
Authors: Prof. Mohammed Albeirutty, King Abdulaziz University, KSA; Dr. Ahmad Al-Amoudi, Eng. Nikolay Vouchkov, DTRI/KSA, Dr. Omar Bamaga, Dr. Eydhah Almatrafi, King Abdulaziz University, KSA, Dr. Mohammed Alsaud, Ministry of Environment Water and Agriculture, KSA
Presenter: Dr. Eidhah Almatrafi, Associate Professor, King Abdulaziz University, KSA

DAY 3 Wednesday, June 1st

11:15-11:45 **Water Desalination and Reuse in Saudi Arabia: Current Status and Future Outlook**

Authors: Prof. Mohammed Albeirutty, Dr. Ahmad Bamasag, Dr. Ahmad Al Amoudi, Mr. Omar Bamaga, Dr. Eydhah Almatrafi, King Abdulaziz University, KSA
Presenter: Dr. Ahmad Bamasag, Assistant Professor, King Abdulaziz University

11:45 - 12:15 **Closing Ceremony**

DAY 3 Wednesday, June 1st Afternoon

13:00 - 18:00 **Tour of Shoaiba Desalination Plant with Magnesium Enrichment Facility**

*Boxed lunch included

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Saline Water Conversion Corporation (SWCC)



DAY 4 Thursday, June 2nd Morning

08:00 - 14:00 **Tour of Rabigh 3 Desalination Plant**

*Refreshments included

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Date	Workshop Title	Moderators
Day 1 10:30-12:30 May 30, 2022	Enabling Research & Innovation in the Science Lab This workshop will dive deep into scientific laboratory principles and practices, techniques, management and how they work to promote innovation in desalination.	Moderator: Dr. Mohamed Al Namazi , Deputy Executive Director, DTRI-SWCC
Day 1 13:00-15:00 May 30, 2022	Innovation in Desalination to Reduce Environmental Impact This workshop will explore innovation's impact and outlines the ways in which environmental issues in Desalination are being addressed.	Moderators: Dr. Omar Osman Aga , Vice Dean, Imam Abdulrahman bin Faisal University, Eng. Hidalgo Manuel , Team Leader, Parsons Engineering, Eng. Troy Green , Senior Researcher, DTRI-SWCC
Day 2 10:30-12:30 May 31, 2022	Innovation in Energy Reduction & Efficiency This workshop will address the use of innovative methodologies in the desalination plants for higher energy efficiency and minimizing the greenhouse gas emissions.	Moderator: Dr. Omar bin Amira , Assistant Deputy Governor, Development and Operational Performance, SWCC
Day 2 13:00-15:00 May 31, 2022	New Generation of SWRO Membranes This workshop will focus on developing the new 8-inch SWRO Hollow Fiber elements. The session will start by demonstrating the background of this initiative based on the market need for RFPs and tenders to build RO Plants on 8-inch interchangeable elements. Afterward, we will give an insight about membrane structure: CTA-HFF, 8-inch Diameters, following a demonstration of the trial run showing essential membrane characteristics (mechanical structure, fouling tolerance, DP trend, Salt-RJ level). Moreover, we will address the parallel activity on pH adjustment using CO2 Carbon Capture. The session will focus on the technical part of the whole trial with an insight into the effect of the Life Cycle Cost.	Moderator: Dr. Tariq Nada VP Water CTS, ACWA Power Co-moderators: Mr. Thomas Altmann , EVP ACWA Power Innovation & New Technology, ACWA Power Mr. Khaled Almedbel , Business Development Director, ACWA Power, Mr. Mohsen Alsalmi , Executive Managing Officer Portfolio Management, ACWA Power, and Mr. Masumoto Nobuyuki , CTO, Arabian Japanese Membrane Company
Day 3 10:00-12:00 June 1, 2022	Artificial Intelligence and Innovation in Desalination This interactive workshop looks at the role of A.I. in solving some of desalination operation's most difficult challenges, such as the threats posed by algae blooms and jellyfish, through the use of A.I. early warning systems.	Modertor: Eng. Essam AlBishi , Head of Artificial Intelligence, SWCC, and additional special guests

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Innovation Driven Desalination

May 30-June 1, 2022
Ritz-Carlton Hotel, Jeddah
Saudi Arabia

UNDER THE PATRONAGE OF

وزارة البيئة والمياه والزراعة
Ministry of Environment Water & Agriculture



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