

# AMSIC Newsletter

September 2023  
Issue 13

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Musicians at FRANCOFILT dinner gala in the city of Fez, TESTEA 2023 (MOROCCO - May 11, 2023)



Algiers by night "Place des Martyrs" in ALGERIA - May 30, 2023



Gathering of AMSIC members during Francofilt 2023 International conference in Fez (delegates coming from Morocco, Saudi Arabia, Tunisia, USA, France, South Africa, Italy, Somalia, Sénégal).

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### Editorial by prof. Raja Ben Amar

Dear readers,

Our association (AMSIC) was founded in 2014 in Mali (headquartered in Bamako), starting with 30 delegates, and today counting 250 members from Africa (33 countries), Europe, North America, and Asia. We are very grateful for receiving on a regular basis AMSIC membership applications, especially when we traveling to conferences. AMSIC delegates include professionals from the academe, industry, government, and students. Many AMSIC staffers residing across all 5 Africa regions are recognized experts in membrane technologies and application uses – including wastewater treatment, water desalination, food processing, air filtration, renewable energy systems etc. Thus, our organization concentrates on advancing membrane science research and implementing impactful technologies and services for the benefits of communities on our continent and across the globe.



Additionally, capacity building for the operation of membrane technologies and separation systems is a core goal of our network, as we strive to leverage the expertise of our generous members and partners to produce training sessions and offer educational curricula to many students in Africa. AMSIC specialists can help assessing the potential for the deployment of membrane technologies, addressing quality and costing matters related to drinking water systems, food process facilities, etc.

The success of AMSIC mission will be measured by its ability to facilitate transversal networking and promote vertical scientific/technological engagement between all regional entities in Africa. Hence, we seek to leverage AMSIC competences for disseminating research and development outcomes and addressing challenges from the local industries, state utilities and other end-users in all regions of Africa.

### 3 Editorial

I have been President of AMSIC for 18 months now and during that period, our society has actively supported two major science and technology gatherings programmed in Africa :

- The first activity was the participation to FRANCOFILT 2023 international conference ([Techniques Séparatives Face au Développement Durable - Sciencesconf.org](https://www.sciencesconf.org)) , organized in Fez, Morocco, May 10-12, 2023.
- The 2<sup>nd</sup> activity was Algiers TESTEA 2023\*, a workshop organized by ANVREDET Algerian agency (May 30 – June 1, 2023) which explored the convergence of interest with the Institut Européen des Membranes/Chaire UNESCO of Montpellier (France) and AMSIC for advancing membrane sciences
  - \*Technologies Emergentes de Séparation pour le Traitement de l'Eau et de l'Air.

TESTEA immediate impact was reflected by the engagement of Montpellier institutions to collaborate with their peers in Algeria, and the decision to initiate a Memorandum of Understanding between the Pan African University institute of Water and Energy Sciences (Tlemcen, Algeria) and AMSIC, to be signed later this year.

Finally, we are excited to conduct the planning of our fourth congress, AMSIC-4, to be held November 5-8, 2024, in Addis Ababa (Ethiopia). We invite you to join us and meet many membrane experts coming from Ethiopia, other regions in Africa and the World.

Enjoy this newsletter.

Sincerely,

Raja Ben Amar

President of the African Membrane Society



L to R: Pr. A. LHASSANI (Chair) and Pr. R. BEN AIM (IFTS) awarded Pr. R. BEN AMAR at Francofilt 2023 held in Fez, MOROCCO (May 10-12, 2023)



L to R, co-Chairs: Pr P. MIELE (IEM, Montpellier) and Dr N. DROUCHE (ANVREDET, Algiers) awarded 3 workshop laureates at TESTEA 2023, ALGERIA (May 30 -June 1, 2023)



# Participation in conferences 4

## Euromembrane 2022



Abdessamad BELGADA, Saad ALAMI YOUNSSI, Abaynesh GEBREYOHANNES, Valentia Letswalo, Fatima ZOHRA Charik, Misgina T. TSEAYE, Sara CHERGAOUI, Abdelhakim EL FADIL, Geoffroy LESAGE, Gaëtan BLANDIN



A special edition of Euromembrane took place on the 20-24<sup>th</sup> November 2022 in Sorrento, Italy, to celebrate the 40<sup>th</sup> anniversary of the European Membrane Society. Numerous members of the AMSIC gave keynote, oral and poster presentations.

Various membrane-related topics were covered:

- Membrane distillation crystallization;
- Organic solvent nanofiltration;
- Water purification;
- Pervaporation;
- Gas separation and carbon capture, etc.

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# Participation in conferences

## ISPAC conference



Soraya Malinga (Prof, in the middle) gave a keynote lecture and chaired a session at the 34<sup>th</sup> International Symposium on Polymer Analysis and Characterization (ISPAC), 24-26<sup>th</sup> April 2023, Stellenbosch, South Africa. This conference was the first time to be hosted in Africa in its 35-year history and was well attended by both local and international experts in polymer science.

## Participation at the 8<sup>th</sup> International Conference on Nanoscience and Nanotechnology in Africa (NANOAFRICA 2022)

Edward NXUMALO (Pr) and his two doctoral students (Mr Abera Ambaye and Ms Karabo Mashiloane from the University of South Africa (UNISA) participated at the 8th International Conference on Nanoscience and Nanotechnology in Africa (NanoAfrica 2022) held at The Lord Charles Hotel, Cape Town on 25 – 28 October 2022. The conference had the theme “Nanotechnology for Sustainability: Towards attaining the World’s Sustainable Development Goals”. The two PhD students gave oral presentations of their research work.

Edward NXUMALO (left), Ms Karabo MASHILOANE (middle) and Mr Abera AMBAYE (right).





# Participation in conferences 6

The conference addressed a wide range of key topics in the field of nanotechnology including:

- Synthesis and characterisation of nanomaterials;
- Nanomaterials for water applications: detection, treatment, and preservation;
- Modelling of nanosystems;
- Commercialisation and industrialisation of nanotechnology;
- Fabrication of nanosystems for sensing, diagnostics, imaging, magnetic and electronic applications;
- Nanoscience and nanotechnology education and communication;
- Nano-biotechnology and – biomedicine;
- Nanomaterials for energy applications;
- Nanotechnology and the 4<sup>th</sup> Industrial Revolution;
- Toxicity, risk assessment and regulations for nanomaterials.

Ms Karabo Mashiloane (PhD student at UNISA) presented her work entitled “Effect of boron nitride nanosheets (BNNS) on the structural morphology and performance properties of polyvinylidene (PVDF) membranes for water-oil separation”.

Mr Abera Ambaye (PhD student at UNISA) presented his work entitled “(Carbon-based nanocomposites for electrochemical detection of 2, 4-dichlorophenol”.



## Edward NXUMALO (Pr) gave a Keynote talk at the 11<sup>th</sup> International Membrane Science and Technology Conference (IMSTEC 2022)

Edward Nxumalo (Pr) attended the 11th International Membrane Science and Technology Conference (IMSTEC2022) where he was invited as a Keynote Speaker. The lecture was entitled: “lecture entitled “Opportunities for Membrane Technology in Africa.”

IMSTEC2022 was held at the Monash University Clayton Campus, Melbourne, Australia, on December 4 - 8, 2022. The conference was chaired by Pr Xiwang Zhang (University of Queensland) and Prof Mikel Duke (Victoria University) who are well known experts in the field of Membrane Science and Technology. IMSTEC2022 represented a renowned, well-established membrane event that gathered research students, early career researchers, researchers and industry representatives to present, share and discuss their outcomes and advances in the membrane separation domain.

## Participation in conferences

IMSTEC2022 covered important topics such as membranes for gas and liquid separations, membranes for fuel cell and energy applications, membranes for food and bio-product applications, membranes for pharmaceutical and medicine applications, membranes for special needs, novel membranes and fabrication methods such as functionalized, responsive, modified, bio- and nanomembranes, advanced methods and sensors for membrane and process characterization and modelling and simulation in the above areas.



### PUBLISHING ACTIVITIES AND COLLABORATIVE ENGAGEMENT

 **frontiers** | Frontiers in **Membrane Science and Technology**

FRONTIERS, third most-cited research publisher, and the African Membrane Society leadership have been diligently working together to create publishing opportunities for research groups in Africa. Specifically, A Research Topic was recently set up under Frontiers new Membrane Science and Technology journal entitled “Emerging Separation Technologies for Water Treatment and Filtration”. This work is related to TESTEA 2023 workshop held 5/30 to 06/01 in Algeria.

Paper submissions are still accepted until December 13<sup>th</sup>, 2023 as shown here [Workshop Emerging Separation Technologies for Water Treatment and Air filtration | Frontiers Research Topic \(frontiersin.org\)](#)

We hope to strengthen this collaboration in the near term, thus enabling AMSIC delegates to disseminate their research work more widely.



## **Simanye Sam (Doctoral student) winner of AMSIC best presentation award – FRANCOFILT 2023**

Attending the 3rd International Congress on Separative Techniques Facing the Challenges of Sustainable Development was an exciting and enriching experience for me. It gave me the opportunity to network with other researchers, to learn from experts in the field and also to showcase my research and communicate my findings to a wider audience.

Presenting my work was quite nerve wracking but also rewarding. Winning the best oral presentation award, awarded by AMSIC boosted my confidence in my work and validated my research. Overall, I believe winning this prize will contribute to the advancement of my career and the recognition of my institution (University of Johannesburg). It was indeed a life altering experience that I will forever hold near and dear.

**Saad ALAMI YOUNSSI (Pr), President of the Moroccan Membrane and Desalination Society (MMDS), appointed Director of the Higher Normal School "Ecole Normale Supérieure (ENS)" of Casablanca, Morocco, on May 24<sup>th</sup>, 2023,**





## 9 Announcements

### **Nachida KASBAJI MERZOUK, Dr, (AMSIC Director of Communication 2014-2021) receives Algeria's Genius Award, Promotion 2022**

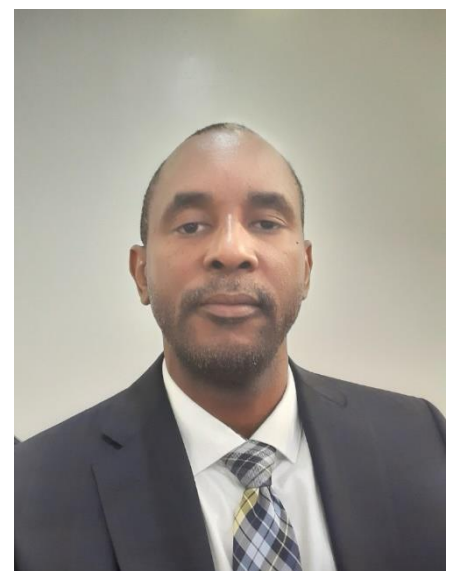


Nachida became the first woman in Algeria to complete a master's degree in solar energy, and she retired in 2021 after a rich scientific career. Among other things, she conducted some ground-breaking work in the field of wind energy and managed to secure nine patents. Nachida steadily climbed the ladder throughout her career and has turned into an iconic figure within the Algeria's renewable energy community. She has trained many graduate students who have become doctors and are now following her footsteps. This award acknowledges her status of role model and inspiring career for those pursuing educational excellence and determined to take on impactful challenges.

Nachida has effectively contributed to shape the vision and strengthen the accomplishments of AMSIC since its inception in 2014. In November 2021, she worked tirelessly to help finalizing AMSIC-3 booklets right before the start of our conference in Dakar. The technical agenda had to be updated every day (late at night for the next morning) as many changes occurred due to the pandemic. These adjustments were made possible thanks to Nachida's determination to assist us remotely!

### **Sidy BA (Pr/Dr), Dir of Science & Technology (AMSIC), from ENI-ABT school in Mali, Recipient of a prestigious grant from the African Academy of Sciences.**

In Nairobi, Kenya, the Inception Workshop of the pilot program of the African Research Initiative for Scientific Excellence (ARISE) was held from June 15 to 17, 2022. Funded by the European Union, the ARISE program is implemented by the African Academy of Sciences (AAS) with the European Commission and the African Union Commission as strategic oversight partners. The ARISE program responds to an urgent need to strengthen Africa's science base by investing in talented researchers and building the capacity of African scientists to deliver cutting-edge research to enhance Africa's sustainable development. ARISE will therefore contribute to efforts to transform Africa into a continent based on knowledge and innovation. In doing so, the program will complement the work of participating African research institutions and universities by creating a critical mass of role models for African researchers. It will also enable and secure career development and help retain research talent on the continent.



Forty-four (44) outstanding researchers across 38 African countries have been awarded five-year grants of up to €500,000. These talented researchers, in early- to mid-career, will thus be able to build their scientific teams independently and conduct cutting-edge research within the framework of ARISE. The 2022 ARISE recipients represent the continent's top research talent, competitively selected from 929 applicants. Their research is diverse, from providing renewable energy solutions to tackling climate change, to food security and targeting the most pressing health and environmental issues for people living in the African countries.

The 44 recipients include our fellow AMSIC board member, Dr. Sidy Ba Associate Professor and Founding Head of the Laboratory of Chemical and Environmental Engineering (LG-ChE) within the Department of Geology and Mines of the National School of Engineers Abderhamane Baba TOURE (ENI-ABT) of Bamako. Dr. Ba has been also honored by his fellow recipients who unanimously designated him as the Fellow-Chair of the Grantees.

Dr. Ba's granted project is entitled "Enzymatic biotechnology for nature-based remediation of environmental pollution (ENZYREP)". Dr. Ba and his team will develop in-situ enzymatic removal of contaminants of (re)emerging concerns (e.g. antibiotics, ARVs, etc.) in wastewater such as hospital effluents and industries. In addition, detoxification of soils contaminated by trace toxic pollutants such as biomedical residues and heavy metals will be investigated with enzymes. Their work will also focus on the sequestration of CO<sub>2</sub> emissions from these environmental matrices (wastewater and soil) and on fertilization of decontaminated soil with enhanced enzyme-converted nitrogen.

To learn more about the ARISE program and Dr. Sidy Ba's profile, please check out the two links below:

[aasciences.africa/news/44-outstanding-early-mid-career-researchers](https://aasciences.africa/news/44-outstanding-early-mid-career-researchers)

[aasciences.africa/grantees-profile](https://aasciences.africa/grantees-profile)

## Hadi TOURE (Mali) wins the IWA-Grundfos 'Youth Action for SDG 6' Fellowship



This Fellowship is a joint initiative of the International Water Association (IWA) and Grundfos that will provide twelve young water professionals (YWPs) with the unique opportunity to actively participate in the United Nations 2023 Water Conference (New York, USA), as well as to be part of a three-day gathering at the Grundfos HQ (Denmark), and to attend the IWA 2023 Water Development Congress (Kigali, Rwanda). According to the IWA, Hadi was one of the 12 candidates selected from more than 200 applications from YWPs from all over the world. She was selected because of her knowledge of the water sector, her ability and capacity to promote change in her region, her leadership and communication skills, her engagement in the water sector, and her commitment to delivering positive change in the sector, especially when it comes to achieving the Sustainable Development Goals (SDGs). Hadi works for the Malian Drinking Water Management Company (SOMAGEP-SA) in addition to lecturing for environmental engineering classes at the National School of Engineers (ENI-ABT) of Bamako.





**AMSIC 4**  
4<sup>th</sup> African Membrane Society International Congress:  
Sustainable Innovation in Membrane and Filtration Science  
for Circular Economy

**November 5<sup>th</sup> - 8<sup>th</sup>, 2024**

**AMSIC invites you to Ethiopia (Addis Ababa)!**

Conference chairs

Shimelis Kebede (Ph.D.)  
AAiT/AAU, Ethiopia  
[shimelis.kebede@aait.edu.et](mailto:shimelis.kebede@aait.edu.et)

Abaynesh Gebreyohannes (Ph.D.)  
KAUST, Saudi Arabia  
[abaynesh.gebreyohannes@kaust.edu.sa](mailto:abaynesh.gebreyohannes@kaust.edu.sa)

Raja Ben Amar (Ph.D.)  
University of Sfax, Tunisia  
[raja.benamar@fss.usf.tn](mailto:raja.benamar@fss.usf.tn)

Conference co-chairs

Sidy Ba (Ph.D.)  
ENI-ABT of Bamako, Mali  
[Sidy.Ba@usherbrooke.ca](mailto:Sidy.Ba@usherbrooke.ca)

Edward Nxumalo (Ph.D.)  
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[www.eschenew.com](http://www.eschenew.com)



[www.aait.edu.et](http://www.aait.edu.et)

Addis Ababa Institute of Techno  
Addis Ababa University







Shimelis KEBEDE (Dr) is an Associate Professor of chemical and environmental engineering at the School for Chemical and Bio Chemical, Addis Ababa Institute of Technology, Addis Ababa University. Dr. Shimelis Kebede has received his BSc in Chemical Engineering from Bahir Dar University, Ethiopia in 2007. He received his MSc and PhD from Addis Ababa University in 2011 and 2017 in Process and Environmental Engineering, respectively. His research interest focuses on Advanced Oxidation Processes (AOPs) and Adsorption process for the treatment of emerging pollutants. He has published more than 18 articles addressing the field of heterogenous photocatalysis- specifically Titanium Dioxide photocatalyst.

Dr Shimelis currently supports an international joint research project focused on sustainable solid waste management, under the research theme SuCCESS24 "Sustainable Cities, Circular Economy, Sub-Saharan Africa 2024". This platform aims to strengthen sustainable development in the Sub-Saharan region using a circular economy approach to develop sustainable and resilient waste management methods. He is also a principal investigator on Sustainable Valorization of Agro-Industrial Residues through Integration of Food, Bioproducts and Bio-energy production/AGROVAL. This initiative is pursued in collaboration with the Technical University of Denmark (Denmark), The Nelson Mandela African Institution of Science and Technology (Tanzania) and Pwani University (Kenya) within 6 project years, and starting from March 01, 2022 to May, 31, 2026. Shimelis oversees the doctoral dissertation entitled "Selection of Solvent and Operating Conditions for Maximum Extraction of Phenolic Compounds and their Separation using Nano Filtration Membranes from Coffee Processing Wastes", as part of this project. Furthermore, he currently serves as the Dean of the Addis Ababa Institute of Technology's School of Chemical and Bio Engineering. Shimelis (Dr) is extremely delighted and honored to serve **as (co)Chairperson and (co)Host** of the 4th African Membrane Society International Congress, **AMSIC-4, Sustainable Innovation in Membrane and Filtration Science for Circular Economy**, which will be taking place in Addis Ababa, Ethiopia, between November 5 and 8, 2024.

# 13 Event (co-)sponsored by AMSIC

## FRANCOFILT-3 in Fez, MOROCCO

FRANCOFILT 3 International Conference, took place in Fez, MOROCCO, from May 10 to 12, 2023



**Location :** Centre Conférences et de Formation de l'USMBA

**Website:** *Site Web,*  
<https://francofilit2023.sciencesconf.org>

**Theme:** Separative Techniques Facing the Challenge of Sustainable Development

**Chairman:** Pr Abdelhadi LHASSANI (Faculté des Sciences & Techniques de Fes), Vice-President of the Moroccan Society for Membranes and Desalination) - [abdelhadi.lhassani@usmba.ac.ma](mailto:abdelhadi.lhassani@usmba.ac.ma)

**Attendance:** 130 participants from France, Italy, Tunisia, Senegal, Niger, South Africa, Saudi Arabia, Canada, USA. **Cities in Morocco:** Agadir, Casablanca, Settat, El Jadida, Mohammedia, Rabat, Kenitra, Meknès et Fès

**Attendance:** 13 institutions, mostly from academia, societies, and research centers.

### Program scope

There were 4 topics that were covered:

- Wastewater treatment and reuse. Circular economy and new paradigms: Zero liquid discharge and low carbon footprint for industrial effluents.
- Desalination, membrane technology, climate change and sustainable development.
- Water quality and environmental protection: Role of separation techniques and membranes; micropollutants and emerging pollutants.
- Simultaneous reduction of water-energy footprints in the current economic context: Separative and membrane techniques for sustainable processes in the Agri-food, Pharmaceutical and Biotechnology industries.

**Agenda:** 11 plenary and keynote lectures, 50 oral presentations, 40 posters, industrial stands

### Conference Proceedings (Published):

Journal publication: Desalination and Water Treatment (Special Edition)

## Best Oral presentations

- **Rida El-Bardai**, Université de Kénitra, Maroc, **500 €** from European Membrane Society (EMS)
- **Farah Lachquer**, Université Sidi Mohamed Ben Abdellah de Fès, Maroc, **200 €** from Institut de la Filtration et Techniques Séparatives (IFTS)
- **Sam Simanye**, Université of Johannesburg, South Africa, **200 €** from African Membrane Society (AMSIC)

## Best Poster

- **Mina Jellab**, Université Hassan II, Mohammedia, Maroc, **500 €** from European Membrane Society (EMS)

## EMS awardees for funding of registration cost:

- **Doha El Machtani Idrissi**, PhD student, Université Hassan II, Mohammedia – waiver **150 €**
- **Dounia Beqqour**, early career reseacher, Université Hassan II, Mohammedia – waiver **300 €**



## Francofilt-3 awardees\* with several organizers and lecturers

From L to R.: A Oulmekki, Doha El Machtani Idrissi\*, A. Doucouré, S. A. Younssi, Sam Simanye, R. Ben Amar, V. Edery, Farah Lachquer\*, Rida El-Bardai\*, Mina Jellab\*, A. Lhassani, Dounia Beqqour\*



**Algeria- France International Workshop, held in Algiers May 30-June 1, 2023**

**TESTEA 2023 took place in the  
City of Algiers, ALGERIA from May 30 to June 1, 2023**

**Statement from Dr Nadjib DROUCHE,**

General Director of ANVREDET, National agency for the valorization of research results and technological development

The main objectives of the *Workshop on Emerging Separation Technologies for Water Treatment and Air Filtration* (TESTEA 2023, May 30th to June 1<sup>st</sup>, city of Algiers) were to present the latest scientific advances in the field of membrane science applications, understand their critical role for developing the Region, and improve the wellbeing of all citizens. Our motivation was assessing how to promote sustainable development through a set of measures designed to close the gap between developed and less developed countries, bearing in mind the parameters established by the United Nations 2030 Sustainable Development Goals.

**Location:** Hotel Ferdi Lilly in Algiers, capital city of ALGERIA

**Website:** Site Web, <https://francofilt2023.sciencesconf.org>

**Theme:** Emerging Separation Technologies for Water Treatment and Air Filtration

**Chairpersons:** Dr Nadjib DROUCHE (ANVREDET, ALGERIA) and Prof Philippe MIELE (Institut Européen des Membranes, IEM, Montpellier, FRANCE)

**Organizing institutions:** ANVREDET and IEM/UNESCO (SIMEV, France) and AMSIC

**Attendance:** over 100 participants from France, Tunisia, Niger, Saudi Arabia, USA, and several cities in Algeria

**Attendance:** 13 institutions, mostly from academia, societies, and research centers.

**Program scope**

Topic 1: Seawater RO Desalination Membranes and Circular Economy

Topic 2: Wastewater Reuse and Recycling

Topic 3: Decentralized Energy Systems Leveraging Membrane Technologies

Topic 4: Industrial Partnerships and Sustainable Development

Tutorial: Air filtration and Indoor Air Quality

Technical visit: Seawater RO Desalination Plant (Tipaza town)

**Conference Proceedings:** Frontiers Topics Research in progress <https://www.frontiersin.org/research-topics/57216/workshop-emerging-separation-technologies-for-water-treatment-and-air-filtration>

**Special thanks to the hosting institutions:** *All industrial sponsors and the local authorities*

**Awards :** 4<sup>th</sup> National Competition “Innovation devoted to Water Management) – A collaborative effort between AGIRE (National Agency for Integrated Management of Water Resources ) and ANVREDET

1<sup>st</sup> Prize Sadek IGOUD: Solar system for wastewater treatment;

2<sup>nd</sup> Prize Meriem BOUTERAA: MBBR system for removing nitrate pollutant in raw water;

3<sup>rd</sup> Prize Khatima KAABECHE: Mobile Monoblock Station for Wastewater Treatment.



1<sup>st</sup> Prize Sadek IGOUD (R) awarded by Nadjib DROUCHE (L)



3<sup>rd</sup> prize Khatima KAABECHE, awarded by Sponsor (L) and Wassila BOULAICHE (R)



Coffee break with some AMSIC members L-to-R: D.E. Akretche, D. Abdessemed, A. Ouabed, N Ghaffour, W Naceur, A Doucoure, R. Ben Aim, L. Ries, S Ouali, I Lebouachera, M., D. Benzouak



Panel on Wastewater Reuse/Recycling with L-R N. K. Merzouk (Chair), R. Khechaba, B. Mouhouche, Z. Gagara

## 17 Event co-organized by AMSIC



Technical tour: Seawater RO Desalination Plant in Tipaza, near Algiers (courtesy Myah Tipaza)  
Visit hosted by Interim Gen. Dir., M. KHATEB (middle), and his team

### Collaboration between Pan African University institute of Water and Energy Sciences and AMSIC



Left to Right: D ABDESSEMED, N DROUCHE, A DOUCOURE, H. FOMENA (PAUWES), S. OUALI,  
PAUWES attendees: Tebogo Vivian SIPHAMBE (Botswana), P. Yasmina BANAON (Burkina Faso),  
Adji Billo NIANG (Senegal), Dir. Abdellatif ZERGA (Algeria)

Memorandum of Understanding (MoU) In progress between PAUWES and AMSIC:

Abdellatif ZERGA (PAUWES Director), Raja BEN AMAR (AMSIC President) and Abdoulaye DOUCOURE held a during TESTEA 2023. They shared a MoU template and agreed to finalize it before August. Objective is to meet in person in Algeria or Tunisia (signatures). Four areas of interest:

- 1- Grad research Internship and PhD Thesis for PAUWES students;
- 2- Industrial internship;
- 3- Collaborative fundraising efforts to support shared activities;
- 4- Promote membrane manufacturing initiatives in Africa.





**Pan African University Institute for Water and Energy Sciences (PAUWES) at TESTEA 2023, Algiers**  
 Herman FOMENA (Cameroon), Safaa REBIHI (Algeria), P. Y. BANAON (Burkina Faso), Abdellatif ZERGA (Algeria, PAUWES Director), Benali MOUFFOK (Algeria), Adji Billo NIANG (Senegal), Adeline MADJISSEM (Chad), Tebogo V. SIPHAMBE (Botswana), 2 PAUWES (Algeria)

## Vijay's dedication to raise *Indoor Air Quality* awareness within AMSIC

### Thank you note



R. VIJAYAKUMAR (PhD), Founder and Consultant in Chief of AERFIL, LLC (USA)

My special thanks go to Vijay (Dr R VIJAYAKUMAR) for his long-lasting support to AMSIC and for providing the bulk content of our Air Filtration course, which I had the pleasure to present during TESTEA 2023 in Algiers. Although Vijay was not able to join us, his guidance is always greatly appreciated. This said, the Indoor Air Quality and Filtration topic deserves greater visibility. We are therefore counting on his joyful spirit and teaching contributions throughout 2023 and all the way to AMSIC-4 in November 2024 – Addis Ababa, Ethiopia.

Abdoulaye Doucouré

## 19 Showcasing AMSIC researchers

**Sara OUALI (Dr)** pursued her PhD thesis as part of an international joint program between the University of Rennes (France) and the University of Science and Technology Houari Boumediene (USTHB, Algeria). Her research work explored water pollution control by implementing a novel coupling technique based on ozonation and nanofiltration processes. Sara's interest was to mitigate the fouling of semi-permeable organic membranes and extend their life cycle thanks to an innovative Hybrid Ozone membrane Nanofiltration (HONF) system tested in a monophasic configuration, using ozone alone or in combination with hydrogen peroxide.



This new concept has caught the attention of public company *Vendée Eau (France)*, and a joint project was submitted earlier this year to French National Research Agency. This project seeks to permanently deploy in the field our integrated process at the Jourdain refining unit. The Jourdain project, which is unique in Europe, will assess the feasibility of reusing urban wastewater for the indirect production of drinking water, via the recharge of a dam feeding water treatment plant."

Sara is also a full-time teaching researcher at USTHB since 2022. Her research topics encompass wastewater treatment processes, membranes technologies -with a focus on nanofiltration- and the synthesis of semiconductors for photocatalytic applications.

She is an active member of the AMSIC network and a (co)-director of the AMSIC Online Academy platform. Her work consists of bridging areas of interest between experienced students (who have already received formal membrane training) and AMSIC teachers. In 2020/21 she successfully mobilized European industry professional to sponsor and attend AMSIC-3 held in Sénégal, Nov 2-5, 2021.

Sara has been actively involved with the International Organizing Committee for the bilateral exchange between the cities of Algiers and Montpellier, *Algiers TESTEA 2023*, scheduled May 30-June 1, 2023. She is also a member of the Scientific Committee for the Second International Conference on Sustainable Water Treatment Technologies and Environment SUST-WATER 2023, to be held at UDES, from the 27th to 28th November 2023.

Sara OUALI (Dr) is also affiliated with the *European Membrane Society* and *Club Français des Membranes*.



**Samuel BUNANI (Dr)** is currently working at the Department of Chemistry, University of Burundi. He is an ARISE fellow working as Principal Investigator of research project granted for 5 years (2022-2027) by African Academy of Sciences, AAS. He obtained his PhD and MSc in Analytical Chemistry in 2017 and 2013, respectively, from Ege University, Turkey. Dr. Bunani does research in Analytical Chemistry applied to the environmental issues. He is mostly interested in water quality analysis, membrane separation technology (NF and RO) for water reuse, electromembrane processes for wastewater management using electrodialysis (ED) and recovery of valuable chemicals from water using bipolar membrane electrodialysis (BMED).

## Publications

1. Deniz İpekçi, Nalan Kabay, **Samuel Bunani**, Esra Altiok, Müşerref Arda, Kazuharu Yoshizuka, Syouhei Nishihama, **Application of heterogeneous ion exchange membranes for simultaneous separation and recovery of lithium and boron from aqueous solution with bipolar membrane electrodialysis (EDBM)**, Desalination, Volume 479, 1 April 2020, 114313. <https://doi.org/10.1016/j.desal.2020.114313>
2. Deniz İpekçi, Esra Altiok, **Samuel Bunani**, Kazuharu Yoshizuka, Syouhei Nishihama, Müşerref Arda, Nalan Kabay, **Effect of acid-base solutions used in acid-base compartments for simultaneous recovery of lithium and boron from aqueous solution using bipolar membrane electrodialysis (BMED)**, Desalination, 448 (2018) 69-75. <https://doi.org/10.1016/j.desal.2018.10.001> External Link
3. **Samuel Bunani**, Muserref Arda, Nalan Kabay (2018) **Effect of operational conditions on post treatment of RO permeate of geothermal water by using electrodeionization (EDI) method**, Desalination 431:100-105. DOI: 10.1016/j.desal.2017.10.032
4. **Samuel Bunani**, Eren Yörükoğlu, Gökhan Sert, Nalan Kabay, Ümran Yüksel, Mithat Yüksel, Özdemir Egemen, Taylan Özgür Pek (2018) **Utilization of reverse osmosis (RO) for reuse of MBR-treated wastewater in irrigation-preliminary tests and quality analysis of product water**, Environmental Science and Pollution Research, 25(4):3030-303. DOI: 10.1007/s11356-015-4199-y
5. **Samuel Bunani**, Kazuharu Yoshizuka, Syouhei Nishihama, Muserref Arda, Nalan Kabay,(2017) **Application of bipolar membrane electrodialysis (BMED) for simultaneous separation and recovery of boron and lithium from aqueous solutions**, Desalination, Volume 424 : 37-44. DOI: 10.1016/j.desal.2017.09.029
6. **Samuel Bunani**, Muserref Arda, Nalan Kabay, Kazuharu Yoshizuka, Syouhei Nishihama, (2017), **Effect of process conditions on recovery of lithium and boron from water using bipolar membrane electrodialysis (BMED)**, Desalination 416: 10-15. DOI: 10.1016/j.desal.2017.04.017
7. Gökhan Sert, **Samuel Bunani**, Eren Yörükoğlu, Nalan Kabay , Özdemir Egemen, Müşerref Arda, Mithat Yüksel (2017) **Performances of some NF and RO membranes for desalination of MBR treated wastewater**, Journal of Water Process Engineering Volume 16.193-198. DOI: 10.1016/i.iwpe.2016.11.009



## 21 Showcasing AMSIC researchers

8. Gökhan Sert, **Samuel Bunani**, Eren Yörükoğlu, Nalan Kabay, Özdemir Egemen, Müşerref Arda, Taylan Özgür Pek, Mithat Yüksel (2016) **Investigation of mini pilot scale MBR-NF and MBR-RO integrated systems performance Preliminary field tests**, Journal of Water Process Engineering 12:72-77. DOI: 10.1016/j.jwpe.2016.06.008

9. **Samuel Bunani**, Eren Yörükoğlu, Ümran Yüksel, Nalan Kabay, Mithat Yüksel, Gökhan Sert (2014) **Application of reverse osmosis for reuse of secondary treated urban wastewater in agricultural irrigation**, Desalination, 364:68-74. DOI: 10.1016/j.desal.2014.07.030

10. **Samuel Bunani**, Eren Yörükoğlu, Ümran Yüksel, Nalan Kabay, Mithat Yüksel, Gökhan Sert, Taylan Özgür Pek (2014) **Application of nanofiltration for reuse of wastewater**, International Journal of Global Warming 6(2/3):325-338. DOI:10.1504/IJGW.2014.061028

11. **Samuel Bunani**, Eren Yörükoğlu, Gökhan Sert, Ümran Yüksel, Mithat Yüksel, Nalan Kabay (2013) **Application of nanofiltration for reuse of municipal wastewater and quality analysis of product water**, Desalination, 315:33-36. DOI: 10.1016/j.desal.2012.11.015

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