

The African Research Initiative for Scientific Excellence

(ARISE)

A High-Level Scientific Event for ARISE

*Theme: Catalysing Africa's Development through
Research & Innovation*

Dates: 4 - 6 June 2024

Venue: Radisson Blu Resort & Thalasso,
Hammamet, Tunisia

Programme

ARISE Partners



Co-funded by
Carnegie Corporation of New York



1 Background Information

The African Research Initiative for Scientific Excellence (ARISE¹) is an innovative Research and Innovation (R&I) support programme implemented by the AAS with support from the African Union Commission (AUC) and the European Commission (EC). The programme is mainly funded by the European Union, with some co-funding from the Carnegie Corporation of New York. Founded on the AU-EU High Level Policy Dialogue on Science, Technology, and Innovation, ARISE provides a vibrant platform and pathway for R&I exchanges within Africa and beyond, in contribution to sustainable and inclusive development, economic growth, and job creation. Launched in December 2020, the current €25.5 million pilot phase of ARISE - mainly funded by the European Union with additional support from the Carnegie Corporation of New York - supports nearly 600 early- to mid-career researchers across Africa, led by 47 principal investigators (ARISE Fellows), hosted in 38 African countries. More information about ARISE is available at <https://bit.ly/3CRcQta>.

From 4-6 June 2024, the AAS, in partnership with the Institut Pasteur de Tunis, shall convene a high-level Scientific event in **Hammamet, Tunisia**. Through a series of scientific sessions, panel discussions, keynote addresses, poster presentations, and research spotlight talks, the event will convene policy makers, thought leaders, scholars, and ARISE Fellows to showcase and discuss advances, challenges, and opportunities for enhancing investments and partnerships to facilitate research and innovation for development.

At the end of the conference, we hope to have a vibrant community of ARISE scholars committed to brokering connections that enhance their career progression while accelerating their contribution to the transformation of lives in Africa through science. Additionally, key messages from the event in Tunisia shall be presented at the 9th edition of the [Science Summit](#) being organised at the margins of the 79th UN General Assembly in September 2024. As the world convenes under the auspices of the [Summit of the Future](#), we hope that insights from ARISE will contribute to solutions aimed at accelerating efforts made by the world to meet existing international commitments and take concrete steps to respond to emerging challenges and opportunities.

¹ <https://aasciences.africa/Programmes/ARISE>

2 Program of Activities

TUESDAY, 4 JUNE 2024

09:00 - 10:30

Session 1a: Opening Ceremony

Master of Ceremony: Mr. Hatem Karoui, Tunisia (all sessions)

Rapporteurs: Dr. Rafeh Oualha, IPT & Ms Dorcas Waithaka, AAS

Welcome Remarks

- Dr. Emna Harigua, ARISE Fellow, Institut Pasteur de Tunis
- Dr. Peggy Oti-Boateng, Executive Director, AAS
- Mr. Marcus Cornaro, Head of Delegation, EU Delegation to Tunisia
- H.E. Prof. Mohammed Belhocine, Commissioner, ESTI, African Union Commission (video)
- Prof. Samia Menif, DG, Institut Pasteur de Tunis
- Prof. Ali Mrabet, Minister for Health, Tunisia
- Prof. Moncef Boukthir, Minister for Higher Education and Scientific Research, Tunisia

Session 1b: Global and African Imperatives on Cooperation in Research and Innovation

Moderator: Prof. Rajaa Cherkaoui, AAS Vice President for North Africa

Rapporteurs: Dr. Rafeh Oualha, IPT & Ms Dorcas Waithaka, AAS

Keynotes:

- Prof. Lise Korsten, President, AAS
- Ms. Rim Saied, DG of Technology Transfer and Innovation, Ministry of Higher Education and Scientific Research, Tunisia
- Prof. Frederick Ato Armah, Director of Research and Programmes, Association of African Universities
- Prof. Quarraisha Abdool Karim, President, The World Academy of Sciences (virtual)
- Prof. Lidia Arthur Brito, Assistant Director-General for Natural Sciences, UNESCO (video)

10:30 – 11:00 Break & Photo op

Session 2a: Capacities for Research & Innovation

Moderator: Prof. Stephen Agong, Treasurer, AAS

Rapporteurs: Dr. Rafeh Oualha, IPT & Ms Dorcas Waithaka, AAS

Opening Keynote: Research and Innovation for Social Justice

Prof. Shaukat Abdulrazak, Director for the Africa Division, International Atomic Energy Agency, Austria (Virtual)

High-Level Roundtable Conversation: Role of Leadership in Catalysing Research & Innovation for Development

- Mr. Noomane Fehri, former Minister for ICT, Tunisia
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- Dr. Partson Chikudza, Director, Research Council of Zimbabwe, Zimbabwe
 - Dr. Vanessa McBride, Science Director, International Science Council, France (Virtual)
 - Dr. Laurent Bochereau, EU Science Counsellor to the AU
 - Amb. Prof. Bitange Ndemo, Professor of Entrepreneurship and Kenya's Ambassador to Belgium and EU, Belgium (virtual)
 - Prof. Maria Leptin, European Research Council (virtual)

Open discussion and audience questions

13:00 - 14:00 Lunch Break

14:00 - 15:15 **Session 2b: Capacities for Research & Innovation**

Introductory Remarks: The African Research Initiative for Scientific Excellence (ARISE)

- *Dr. Peggy Oti-Boateng, Executive Director, AAS*
- *Dr. Obed Ogega, Programmes Manager, AAS*
- *Mr. Jean-Michel Sers, DG INTPA, European Commission*

Research Spotlight Presentations – part 1

Moderator: Prof. Hamisi Malebo, National Commission for UNESCO, Tanzania

Rapporteurs: Ms. Ons Masmoudi, IPT & Dr. Rowland Opisa, AAS

- Light Scattering, Quantum Information & Quantum Simulation by Cold Atoms: *Dr. Mohamed T. Rouabah, Freres Mentouri University Constantine 1*
- Quantum Simulations and Energy Materials: *Dr. Katawoura Beltako, Université de Lomé, Togo*
- Development of efficient and robust mxene based photocatalysts for production of solar fuel (hydrogen) via photocatalytic water splitting: *Dr. Hafeez Yusuf Hafeez, Federal University Dutse, Nigeria*
- Earthquakes Monitoring and hazard evaluation in Madagascar: *Dr Hoby Razafindrakoto, Institut et Observatoire de Géophysique d'Antananarivo, Madagascar*

Q&A (20 Mins)

15:15 - 15:45 Break

15:45 – 17:00 **Session 2c: Capacities for Research & Innovation**

Moderator: Prof. Hamisi Malebo, National Commission for UNESCO, Tanzania

Rapporteurs: Ms. Ons Masmoudi, IPT & Dr. Rowland Opisa, AAS

Research Spotlight Presentations – Part 2

- Development of an Electrochemical Process for Recovery of Nutrients from Liquid Waste Resources: *Dr. Samuel Bunani, University of Burundi, Burundi*
- From plastic waste to low-cost carbon nanoreactors for use in monitoring environmental pollutants and nanoplastics: *Dr. Bridget Mutuma, University of Nairobi, Kenya*
- Water stable porous Metal Organic Frameworks as host materials for biological

catalysts in carbon dioxide conversion to methanol: *Dr. Gift Mehlana, Midlands State University, Zimbabwe*

- Sustainable Water Filtration Using Cellulose Based Membranes Derived from Local Biomass: *Dr. Ngonye Keroletswe, Botswana Institute for Technology Research and Innovation, Botswana*

Q&A

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- 17:30 – 21:00
- Poster presentations/Talent Exhibitions (1 Hour 30 Mins)
 - Tunisian Culture Experience (Traditional band from Tunisia)
 - Networking dinner
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WEDNESDAY, 5 JUNE 2024

09:00 - 11:00 **Session 3: Research and innovation for the SDGs**

Moderator: Dr. Obed Ogega, Programmes Manager, AAS

Rapporteurs: Dr. Rafah Oualha, IPT & Dr. Boniface Ushie, AAS

Opening Keynote: the role of Research and Innovation in the realisation of Africa's Agenda 2063 – the "Africa We Want"

Prof. Jean Kouliadiati, Rector, Pan African University (virtual)

Roundtable discussion: Strengthening the Ecosystem for Development, Use, and Scale of Innovation in Africa

Panellists: Part 1

- Mr. Shaofeng Hu, Director, Division of Science Policy and Basic Sciences, UNESCO, France
- Ms. Brigitte Decadt, Senior Advisor for International Science and Technology Cooperation, Belgian Federal Science Policy Office, Belgium
- Dr. Mohamed Ali Marouani, Institut de Recherche pour le Développement (IRD) Representative in Tunisia
- Mr. Fabrice Rousseau, Counsellor for Cultural Affairs and Cooperation at the French Embassy in Tunis
- Dr. Wei Liu, Coordinator, Sustainable Development Officer, UN Inter-agency Task Team on Science, Technology and Innovation for the SDGs
- Mr. Lukovi Seke, Programme Officer for STI, AUDA-NEPAD
- Dr. Victor Konde, Scientific Affairs Officer, TCCNRMD- Green Economy Innovations & Technologies Section, UNECA

Open discussion and audience questions

Panellists: Part 2

- Dr. Fadila Boughanemi, DG RTD, European Commission
- Prof. Helmi Mardassi, Director of Horizon Europe programme at the Min. of Higher Education & Research, Tunisia
- Ms. Eudy Mabuza, South Africa's Science & Innovation Representative to the EU
- Dr. Eliud Musotsi, Ag. Deputy Director, Research Grants, National Research Fund, Kenya
- Ms. Atridah Mulonga, Head of Research and Grants, National Science and Technology Council of Zambia
- Dr. Cephas Mensah, Director, Ministry of Environment, Science, Technology and Innovation, Ghana
- Prof. Paco Sereme, AAS VP for West Africa & Director of Research at the Institute of Environment and Agricultural Research (INERA), Burkina Faso

Open discussion and audience questions

11:00 - 11:15 Break

11:15 - 12:45 **Session 4: Technology and Innovation**

Moderator: Prof. Ahmed Zobaa, Chair ARISE SAC

Rapporteurs: Ms. Ons Masmoudi, IPT & Dr. Rowland Opisa, AAS

Research Spotlight Presentations

- Development of a secure 5G and beyond digital health test bed for modelling telemedicine systems, mHealth applications and smart hospitals: *Dr. Bessie Malila, University of Cape Town, S. Africa*
- Bioinformatics and artificial Intelligence for infectious and Neglected Diseases drug discovery research Platform: *Dr. Emna Harigua, Institut Pasteur de Tunis, Tunisia*
- Developing mobile application for formulating cost-efficient balanced and climate sensitive rations for improving livelihood of smallholder cattle farmers in West-Africa: *Dr. Alassan Assani Seidou, University of Parakou, Benin*
- Broadband Internet Access for Unconnected and Under-connected areas: *Dr. Hajar El Hammouti, Université Mohammed VI Polytechnique, Morocco*
- Solar-biogas hybrid dryer: an energy efficient and environmentally friendly technology for drying agricultural products: *Dr. Thomas Kivevele, Nelson Mandela African Institute of Science and Technology, Tanzania*
- Smart solutions for water and agriculture to face the Climate Change Crisis in Cabo Verde: *Dr. Sonia Semedo, Universidade de Cabo Verde, Cape Verde*

Q&A (20 Mins)

12:45 - 13:30 Lunch Break

13:30 - 15:15 **Session 5a: Green Transition**

Moderator: Prof. Christopher Oludhe, University of Nairobi

Rapporteurs: Dr. Rafeh Oualha, IPT & Ms. Dorcas Waithaka, AAS

Keynote 1: Connecting climate knowledge with the users: Insights from the World Meteorological Organisation (WMO) Regional Office for Africa

Dr. Ernest Afiesimama, WMO Regional Officer for Africa

Keynote 2: Connecting climate knowledge with the users: Insights from EU's Joint Programming Initiative for Climate (JPI Climate)

Dr. Rafiq Hamdi, Researcher, Royal Meteorological Institute of Belgium

Research Spotlight Presentations – part 1

- Oyster Shell Models for Hindcasting Holocene Environmental Conditions in Equatorial Atlantic Coastal Waters of Africa: *Dr Edem Mahu, University of Ghana, Ghana*
- Impact of climate change on wetlands from the Lake Chad basin and its consequences on groundwater recharge: *Dr Abdallah MAHAMAT NOUR, University of N'Djamena, Chad*
- Future Landscape Optimisation for peri-Urban Resilience and ecoSystem Health: *Dr Jessica Thorn, University of Namibia, Namibia*
- An experimental approach to optimizing policy for scaling-up climate-smart agriculture in Africa: *Dr. Sarobidy Rakotonarivo, University of Antananarivo, Madagascar*
- MetaGenomics-Led Harnessing of the African Orphan Cereals-Rhizosphere-Microbiota for Sustainable and Climate-Resilient Agriculture in Sub Saharan Africa: *Dr. Eltayb Abdellatef, National Center for Research, Sudan*
- Harnessing Oryza glaberrima genomic resources for rice disease resistance in a changing climate: *Dr. Geoffrey Onaga, Africa Rice Center, Cote d'Ivoire*
- Agromorphological, genetic and biochemical Characterization of three neglected legumes species grown in Togo and assessment for their adaptability to drought: *Dr. Koffi Kibalou Palanga, Université de Kara, Togo*

Q&A (20 Mins)

15:15 - 15:30 Break

15:30 - 17:00 **Session 5b: Green Transition**

Moderator: Prof. Chris Nwani, University of Nigeria Nsukka, Nigeria

Rapporteurs: Dr. Rafeh Oualha, IPT & Ms. Dorcas Waithaka, AAS

Keynote 3: How to transform Africa's food system

Dr. Obed Ogega, Climate Scientist & Programmes Manager, AAS

Research Spotlight Presentations – part 2

- Multi-scale study of artisanal gold mining processes in West Africa for developing better safe practices: *Dr. Ahmed Amara Konate, Higher Institute of Mines and Geology of Boké, Guinea*
- Investigation of local food sources of prebiotics for the prevention and management of moderate acute malnutrition in Niger: *Dr. Ibrahim Karidio Diori, CERMES, Niger*
- Adopting multi-disciplinary approaches in genetic improvements, nutritional enhancement and climate change adaptation for improved production of Nile tilapia in Uganda: *Dr. Margaret Aanyu, NARO, Uganda*
- Evaluation of Eucheumoids cultivation and exploitation in the Southern of Mozambique: *Dr. Valera Lucena Dias, Universidade Eduardo Mondlane, Mozambique*
- Quantifying impacts of human-induced disturbances on biodiversity–ecosystem functioning relationships in Central Africa: *Dr. Grace J.L. Panzou, Marien Ngouabi University, Republic of Congo*
- Enzymatic biotechnology for nature-based remediation of environmental pollution: *Dr. Sidy Ba, Ecole Nationale d’Ingenieurs Abderhamane Baba Touré, Mali*
- Harnessing Plant Biotechnology Techniques for the Upliftment of Smallholder Agripreneurs in Eswatini: *Dr. Celimphilo Mavuso, University of Eswatini, Eswatini*

Q&A (20 Mins)

THURSDAY, 6 JUNE 2024

09:00 - 10:45 **Session 6a: Research & Innovation for Global Health**

Moderator: Prof Martin M Nyaga, University of the Free State, South Africa

Rapporteurs: Dr. Rafah Oualha, IPT & Ms. Dorcas Waithaka, AAS

Keynote Presentation: Grand Challenges and Opportunities in Global Health: Perspectives from the AU-EU Policy Study on Health

Prof. Marleen Temmerman, Aga Khan University, Kenya

Research Spotlight Presentations: Part 1

- Blood group Polymorphism and Susceptibility to malaria: *Dr. Euclides Sacomboio, Universidade Agostino Neto, Angola;*
 - Ecology and behaviour of insecticide resistant *Aedes aegypti* for dengue and other emerging arboviruses control in West Africa: *Dr. Hyacinthe Toe, Centre National de Recherche et de Formation sur le Paludisme, Burkina Faso*
 - Innovative Vector control strategies using entomopathogenic fungi for safe and reliable control of mosquitoes that transmit malaria and Dengue virus: *Dr Etienne Bilgo, Institut de Recherche en Science de Sante, Burkina Faso*
 - Improving the diagnosis and surveillance of emerging arboviruses: *Dr. Ngu*
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Abanda, Centre Pasteur of Cameroon, Cameroon

- Assessing the functional contribution of genetic diversity in *Plasmodium falciparum* RH5 vaccine candidate complex in immune evasion: *Dr. Laly Gaye Thiam, Institut Pasteur de Dakar, Senegal*
- Combining metabolomics profiling of polyherbals and *Plasmodium falciparum* asexual blood stage-specificity to improve mechanistic knowledge on malaria therapeutic lead discovery: *Dr Protus Arrey Tarkang, Institute of Medical Research and Medicinal Plants Studies, Cameroon*

Q&A (20 Mins)

10:45 - 11:00 Break

11:00 - 12:30 **Session 6b: Research & Innovation for Global Health**

Moderator: Dr. Rowland Opisa, AAS

Rapporteurs: Ms. Ons Masmoudi, IPT & Ms. Dorcas Waithaka, AAS

Research Spotlight Presentations

- Development of novel antimalarial therapeutics targeting *Plasmodium falciparum* Lipid-binding proteins: *Dr. Emmanuel Amlabu, Ahmadu Bello University, Nigeria*
- Investigating factors associated with Ebola virus disease outcome in patients receiving monoclonal antibody therapies: *Dr Dacquin Kasumba, Institut National de Recherche Biomédicale, Democratic Republic of Congo*
- What are the bioecological drivers underlying the invasive success of *Aedes albopictus*, and risks of arbovirus emergence in Gabon, Central-Africa? *Dr Judicaël Obame-Nkoghe, University of Science and Technology of Masuku, Gabon*
- Unravelling the bi-directional patho-immunological effect of the human gut microbiome and malaria in children with varied clinical malaria manifestation: *Dr. Mary Oboh, Medical Research Council Unit, The Gambia*

Q&A (20 Mins)

Roundtable discussion: Needs & Technologies for healthy societies with responsive & resilient health systems

Moderator: Prof. David Onyango, Maseno University, Kenya

Rapporteurs: Ms. Ons Masmoudi, IPT & Ms. Dorcas Waithaka, AAS

- Prof. Hechmi Louzir, Former Director of Institut Pasteur de Tunis and Director of the national campaign of COVID19 vaccination, Tunisia
- Dr. Meryem Khrouf, Director of Medical Research in the Ministry of Health, Tunisia
- Prof. Marleen Temmerman, Director of the Centre of Excellence in Women and Child Health & Chair of the Department of Obstetrics and Gynaecology, the Aga Khan University East Africa, Kenya
- Prof. Faadiel Essop, President, African Association of Physiological Sciences, South Africa

Open discussion and audience questions

12:30 - 13:15 Lunch Break

13:15 - 15:30 **Session 7a: Capacities for Science and Higher Education**

Moderator: Prof. Adesola Ajayi, First Technical University, Ibadan, Nigeria

Rapporteurs: Dr. Rafeh Oualha, IPT & Ms. Dorcas Waithaka, AAS

Keynote presentation on Equitable Scientific Collaboration

Prof. Paul Zeleza, Senior Advisor for Strategic Initiatives, Howard University, USA

Research Spotlight Presentations

- The role of Foxp3+ regulatory T cells in the control of schistosomiasis-induced liver fibro-granulomatous inflammation: *Dr. Nada Abdel Aziz, Cairo University, Egypt*
- Advanced Nanomaterials for disease diagnosis using human breath: *Dr. George Chimowa, Botswana International University of Science and Technology, Botswana*
- Enhancing diagnosis of acute meningitis in meningitis belt resource-limited setting, Ethiopia: *Dr. Getachew Tesfaye Beyene, Armauer Hansen Research Institute, Ethiopia*
- Genomic and Environmental factors of neurodevelopmental disorders in sub-Saharan African children: *Dr. Annette Uwineza, University of Rwanda, Rwanda*
- Development of Theileria parva-transmission blocking universal vaccines: toward control of East Coast fever cattle-disease: *Dr. Charles Ndawula, National Livestock Resources Research Institute, Uganda*
- Gastric cancer in Zambia: A comprehensive evaluation of epidemiology and mechanisms of carcinogenesis: *Dr. Violet Kayamba, University of Zambia, Zambia*
- Optimizing Care for Adolescents with Tuberculosis: A Pilot Implementation Study in Namibia: *Dr. Graeme Hoddinott, University of Namibia, Namibia*
- Antimicrobial biogenic nanocomposite formulations from banana and plantain plants (*Musa spp.*): *Dr. Christian Nkanga, University of Kinshasa, D R Congo*
- Implementing a Malawi Mental Health Literacy e-Curriculum (MHLeC) to students in universities within a randomised feasibility trial: *Dr. Sandra Jumbe, Millenium University, Malawi*

Q&A (20 Mins)

15:30 - 15:45 Break

15:45 - 16:30 **Session 7b: Capacities for Science and Higher Education**

Moderator: Dr. Boniface Ushie, AAS

Rapporteurs: Dr. Rafeh Oualha, IPT & Ms. Dorcas Waithaka, AAS

Roundtable discussion: Academic freedom, scientific integrity, and equitable treatment in scientific collaboration

- Prof. Jean-Paul Moatti, Aix-Marseille University, France
 - Dr. Noëline Raondry Rakotoarisoa, former Director, Man and Biosphere
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programme, UNESCO

- Prof. Refaat Chaabouni, Innovation Strategy and Innovation Policy expert & former Minister of Higher Education and Scientific Research, Tunisia
- Prof. Paul Zeleza, Senior Advisor for Strategic Initiatives, Howard University, USA
- Prof. Stephen Agong, AAS Treasurer & Chairman of Mount Kenya University Council, Kenya
- Prof. Rajaa Cherkaoui, AAS VP for North Africa & Professor at University Mohammed V-Agdal, Morocco
- Prof. Godfrey Tangwa, AAS VP for Central Africa & Senior Fellow in Governance & Ethics at the Nkafu Policy Institute, Cameroon

Open discussion and audience questions

16:30 - 17:00 **Session 8: Closing Ceremony**

- Award of best poster presentations

Closing Remarks from:

- Dr. Peggy Oti-Boateng, Executive Director, AAS
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