

# The African School of Physics (ASP)



<https://www.africanschoolofphysics.org>

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## THE SIXTH BIENNIAL



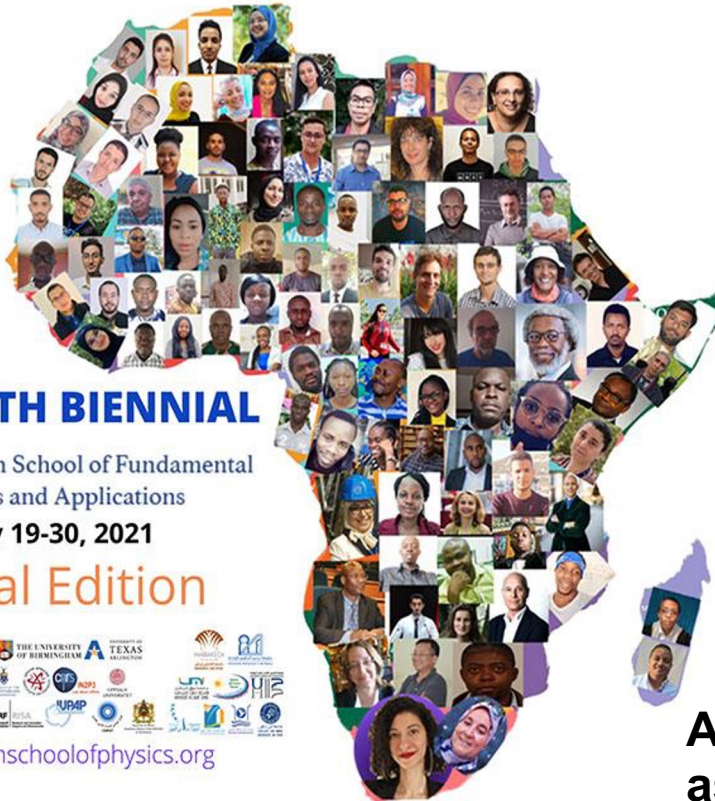
African School of Fundamental  
Physics and Applications

July 19-30, 2021

Virtual Edition



[www.africanschoolofphysics.org](http://www.africanschoolofphysics.org)



**ASP is much more than a school. It is  
as system of actions with physics  
as an engine for development in Africa**



@BrookhavenLab

July 13, 2024

**Dr. Kétévi A. Assamagan (BNL)**

# Organization

## Objectives

Capacity development and retention in Physics in Africa

**Local Organizing Committee (LOC)** – in the host country to deal with logistical issues on at the venue

**Comité Consultatif International (IAC)**  
Advise of the scientific program, host country selections, funding issues

**Comité International d'Organisation (IOC)**  
Responsible for the continuity of the school  
Management, funding raising, activity reports

**Feedback**  
From participants for future improvement

**International Lecturers**  
Develop and improve the scientific program. Help with students selection  
Student mentorship and coaching

**Spinoff**  
Networking and resources sharing  
Synergy between ASP and African country objectives for physics education & research  
Improvement of future editions of ASP  
Promote research collaboration

# Founding Members

2008-2010  
First school in  
South Africa in 2010



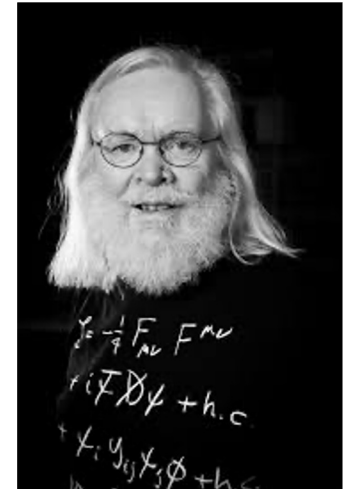
Pr Bobby Acharya  
Physicien à l'ICTP  
et  
King's College  
London



Dr Steve G. Muanza  
Physicien au CNRS-  
IN2P3  
Marseille France



Dr Christine Darve  
Ingénieur  
Scientifique au  
Neutron  
Spallation Source  
à Lund Suède



Pr John R. Ellis  
Physicien au CERN  
et  
King's College  
London



Dr Kétévi A. Assamagan  
Physicien à Brookhaven  
National Laboratory  
à New York

# Current Members of the IOC



Pr Bobby Acharya  
Physicien à l'ICTP  
et King's College  
London



Dr Christine Darve  
Ingénieur Scientifique  
au Neutron  
Spallation Source à  
Lund Suède



Pr Fernando Ferroni  
Physicien à GSSI-INFN,  
Italie

Dr Kétévi A. Assamagan  
Physicien à Brookhaven  
National Laboratory à  
New York



Dr Mounia Laassiri  
Physicienne à  
Brookhaven  
National Laboratory à  
New York





# IAC – International Advisory Committee

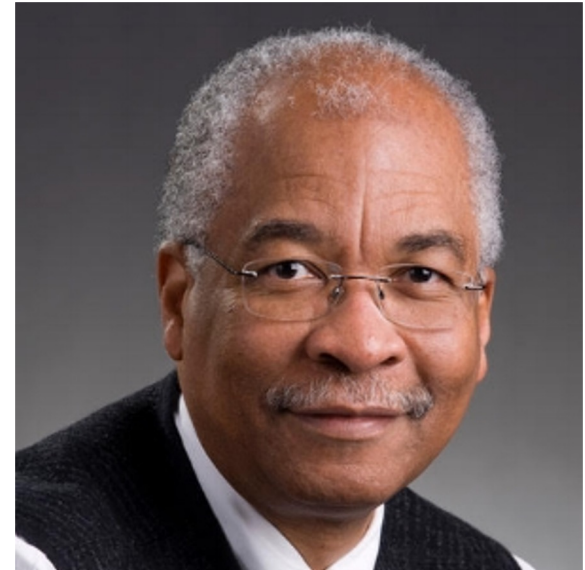
- Contains representatives of sponsors
- Helps with funding, host country selection, site visits, scientific program, etc.



Dr Latifa Elouadrhiri  
Physicienne à Jefferson Lab  
Newport News Virginie USA



Dr Horst Severini  
Physicien à l'Université  
d'Oklahoma, USA



Dr Herman B. White Jr  
Physicien à Fermilab, USA

# ASP Building capacity

3-6 months US research visits

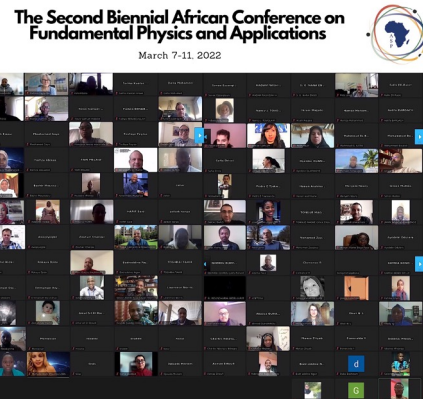


## High School Outreach

## High School teachers



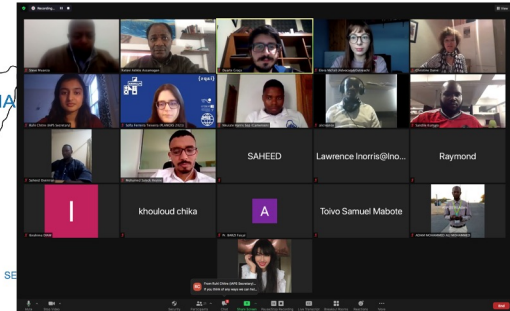
## Student Mentorship



### African School of Physics

- South Africa, 2010, 2022
- Ghana 2012
- Senegal 2014
- Rwanda 2016
- Namibia 2018
- Morocco 2020-online, 2024

Over 3k student applicants;  
Selection rate: 1 in 5



## Online lectures



## Engagement with Policy makers

- ★ ASP is much more than a school;
- ★ it's a system of physics activities for education & research development



Created with mapchart.net



# ASP Students

ASP2026 will be held in Kenya

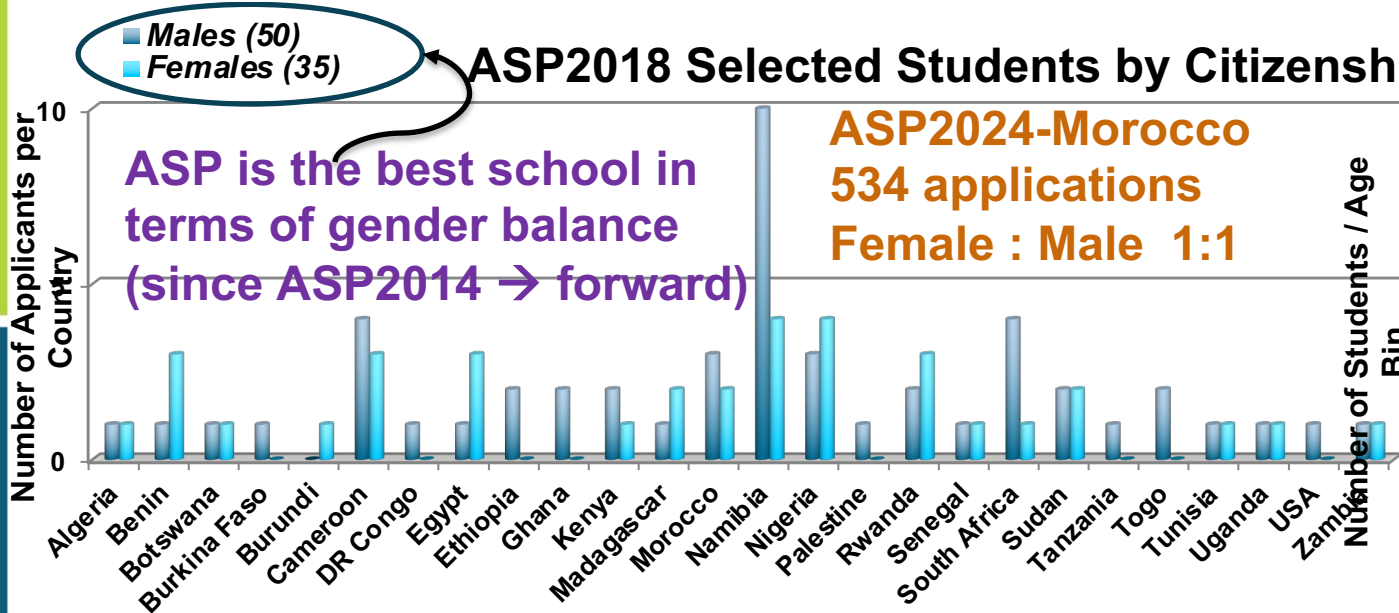
*Provide partial or full financial support to students and create a scientific melting pot of cultural diversity*

- Diversity of academic levels
  - Mainly Master and PhD students
- Diversity of education background
  - From theoretical physics to engineering sciences
- Diversity of the countries of origin
  - Priority to Sub-Saharan African students
- Women participation (~32 - 50%)
  - Role of women in LDC.
- Local Universities
  - Involve students and professors

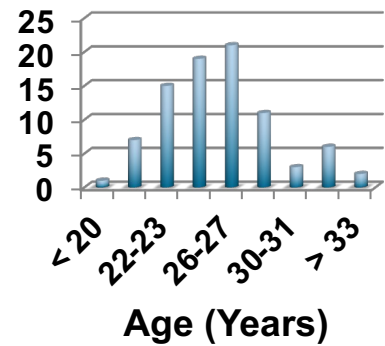


Host country selected 2.5 years in  
Advance by an international committee

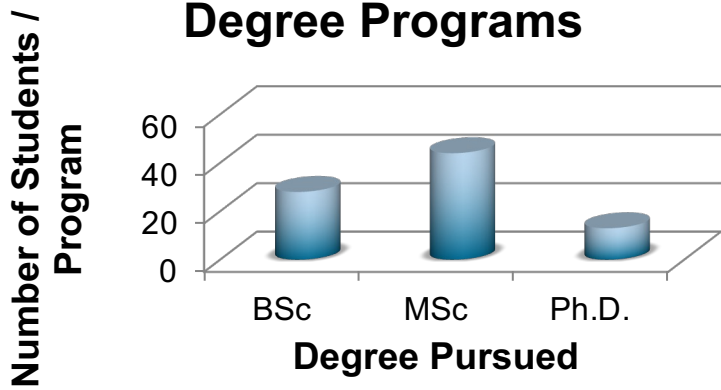
# ASP2018 Selected Students by Citizenship



## ASP2018 Selected Students by Age

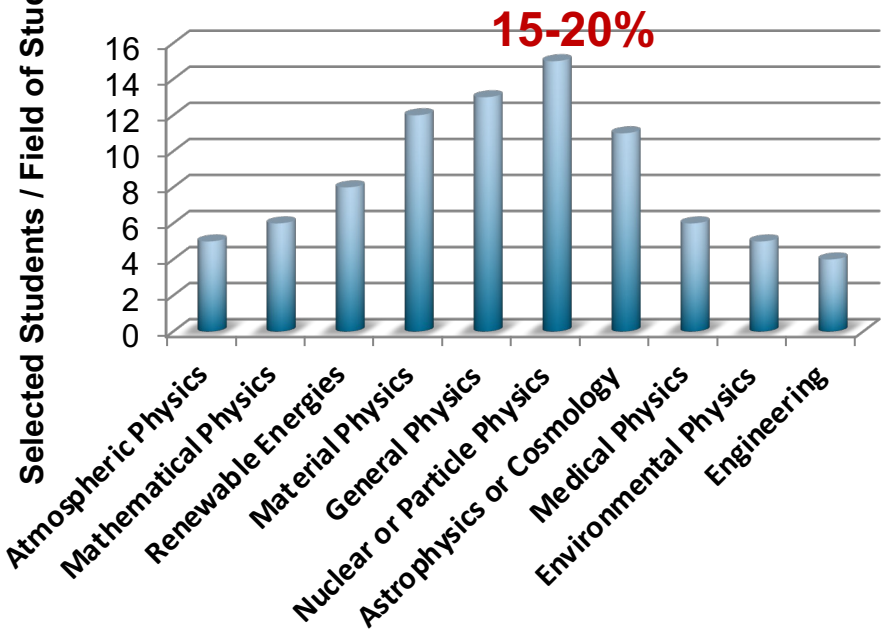


## ASP2018 Selected Student Degree Programs



**523 applications in 2018**  
**85 selected; 30 waiting list**

## ASP2018 Selected Students by Field of Study





# African School of Physics

## Program for high school pupils



Dr. Mounia Laassiri (center), discussing the mathematical formalism of the concept of center-of-mass and the condition of stability of a 15-block Jenga cantilever that the learners succeeded in building. Morocco, April 2024, ASP2024

## Program for high school teachers



Dr. Milind Diwan leading a workshop for high school teachers. Namibia 2018



Engagement with African policymakers on physics education & research. Namibia 2018

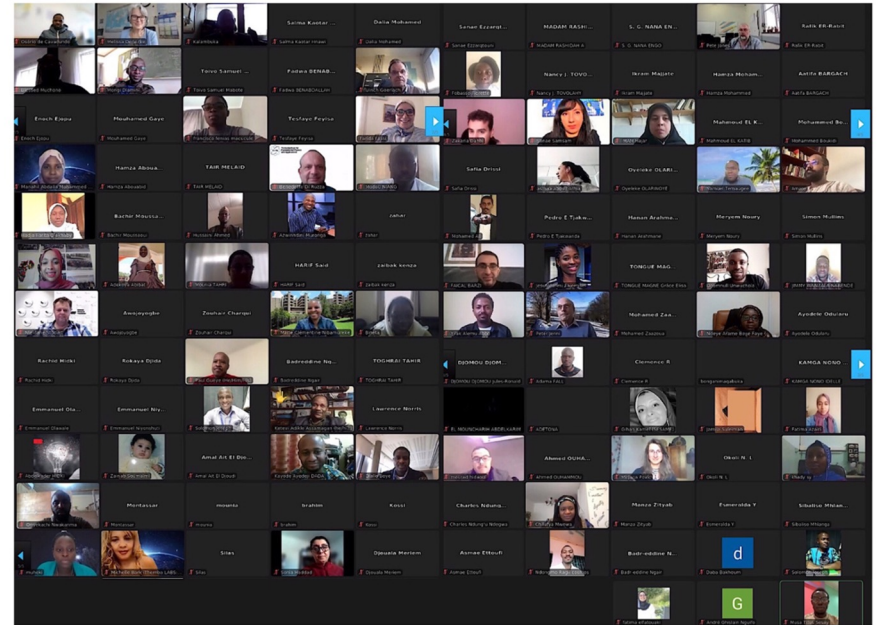
# The African Conference on Fundamental and Applied Physics (ACP)

## The Second Biennial African Conference on Fundamental Physics and Applications

March 7-11, 2022



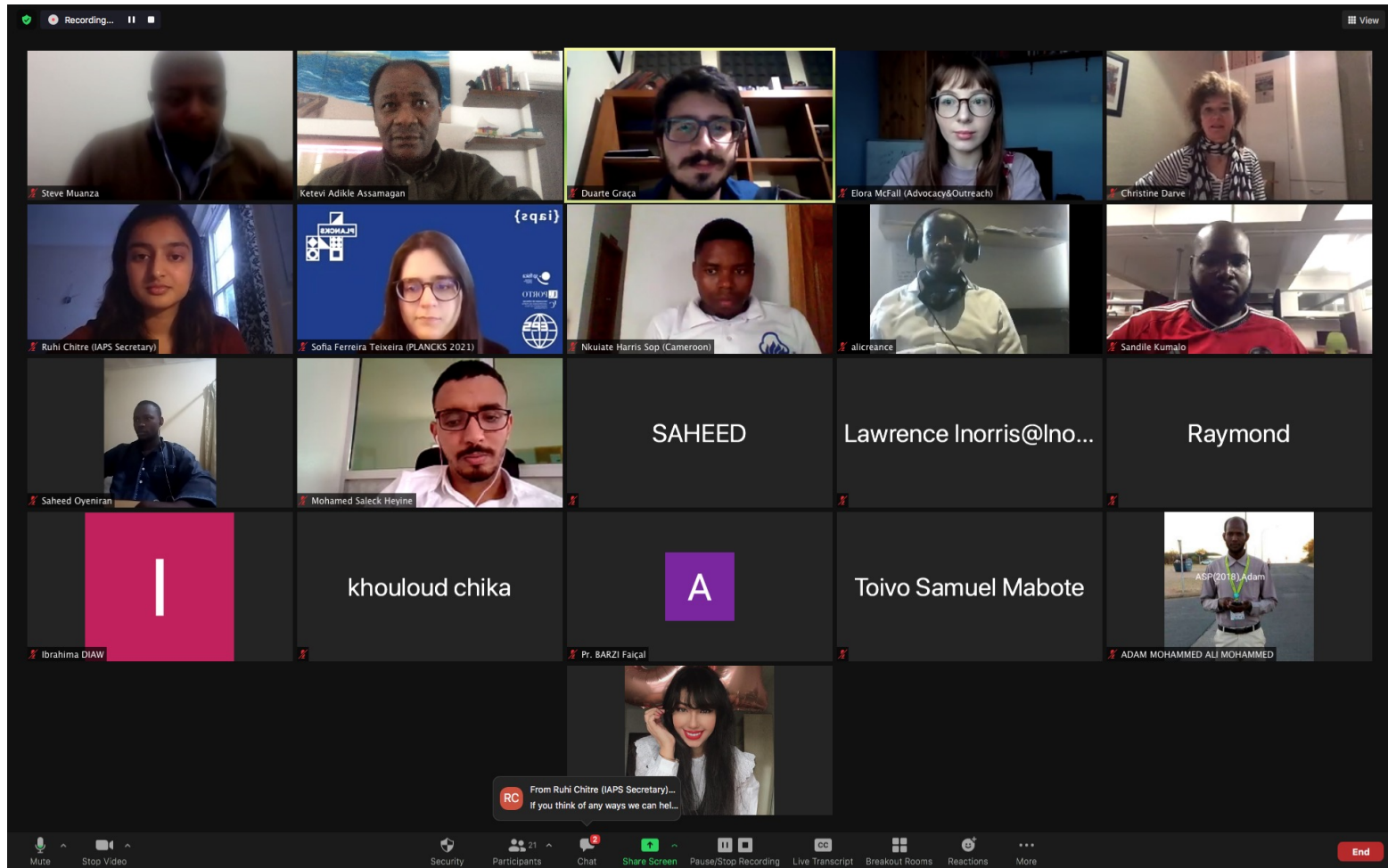
- One week, integrated in ASP since 2018
- The first ACP took place in Namibia in July 2018
- Formalized to promote
  - Participation of African research faculties
  - Encourage participation of African students not selected for ASP due to budget constraints
  - International conference open to anyone



**ACP2025 will be held in Togo, September / October 2025**

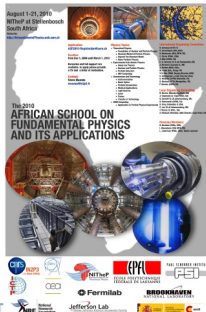
**Over 700 registrations in this event**

# Online Lectures / Discussions / Workshops





# ASP Forum — engagement with policymakers



**AfLS and compact acc.**  
**Prof. H. WINICK, Prof. Emeritus, SLAC and Prof. L. SERAFINI (INFN, IT)**

**Dedicated to Knowledge and Transfer of Technology**  
**Dr. D. ADAMS, chief director:** Emerging Research areas & Infrastructure, Human Capital and Knowledge Systems.

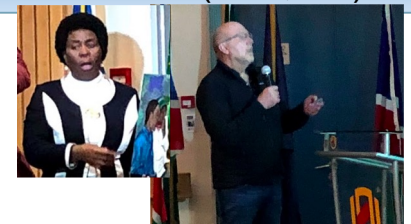
**East Afr. Science and New ICTP Center**  
 Rwandan Ministry of Education



**UN support**  
**Dr. H. TOURE, UN ITU Secretary General.**  
**Prof. A. WAGUE and O. KA M. NGOM - US Embassy rep.**



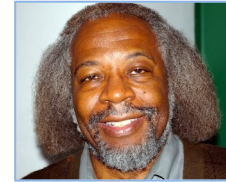
**Dr T. TJIVIKUA, Vice-Chancellor, Namibia University of Science and Technology (Namibia)**  
**Dr. R. ADAM (SKA, SA)**





# World-Class Lecturers

- ✧ People-oriented lecturers willing to share their experience with African students
- ✧ Highly motivated and motivating characters
- ✧ Most of ASP lecturers are financially supported by their home institutes
- ✧ Provide fruitful interactions with students
- ✧ Lecturers typically attend the ASP for 3 - 7 days



# ASP Alumni at BNL 2019-2023



## June-December 2019. From left:

In front, Christelle Ekosso (Cameroon), Dr. Mounia Laassiri (Morocco); standing, Diallo Boye (Senegal), Dr. Somiealo Azote (Togo), Jesutofunmi Fajemisin (Nigeria), Hassnae El Jarrari (Morocco), Dr. Kétévi A. Assamagan, Raymond Yogo (Kenya), and Yves Kini (Burkina Faso). **Heba Sami Abdulrahman (Egypt), not in the figure, arrived in September 2019.**



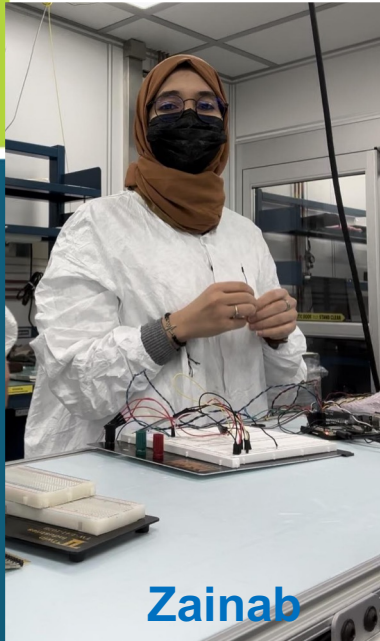
## July 2022 – February 2023. From left:

Asmaa Aboulhorma (Morocco), Zainab Soumaimi (Morocco), Kétévi A. Assamagan, Antalia Rabarisoa (Madagascar), Xola Mapekula (South Africa), Kayode Dada (Nigeria), Rado Fanantenana (Madagascar)

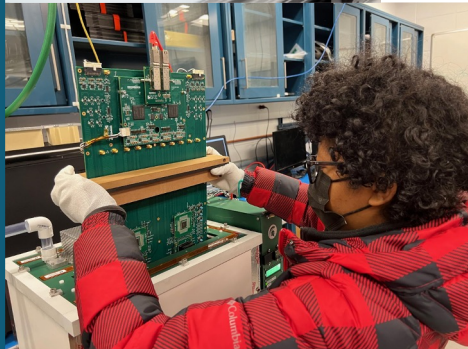


# ASP Alumni short-term visits for research

## Cohort of 2022-2023



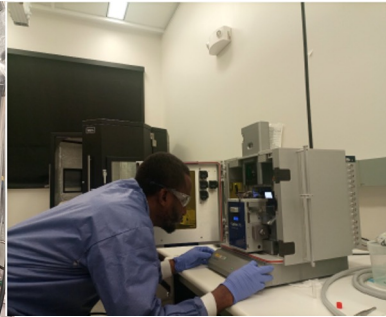
Zainab



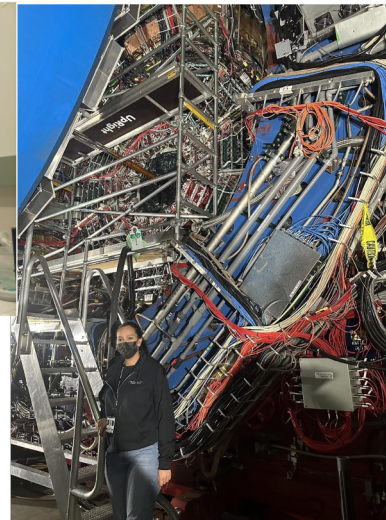
Antalia



Rado



Kayode



Asmaa



Xola



August 2022 – February 2023.

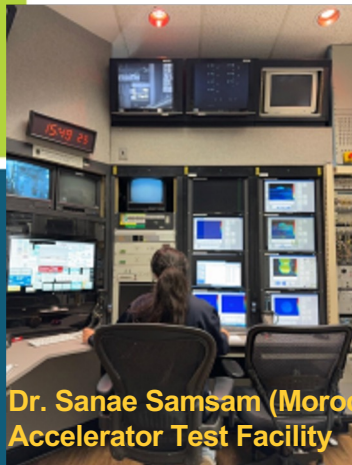
From left:

Asmaa Aboulhorma (Morocco),  
Zainab Soumami (Morocco),  
Dr. Kétévi A. Assamagan,  
Antalia Rabarisoa (Madagascar),  
Xola Mapekula (South Africa),  
Dr. Kayode Dada (Nigeria),  
Rado Fanantenana (Madagascar)



# ASP Alumni at BNL 2023-2024

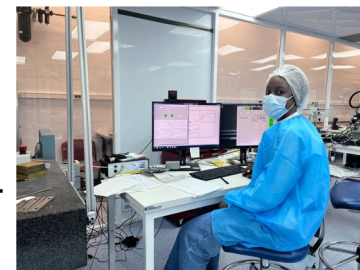
- 6 ASP alumni for the period of June 2023 - April 2024
  - From Kenya, Morocco, Senegal and Togo
  - 1 arrived on June 18, 2023
  - 4 arrived on July 31, 2023
  - 1 arrived on January 21, 2024



**Dr. Sanae Samsam (Morocco),**  
Accelerator Test Facility



**Gloria Maithya**  
(Kenya), **DUNE**



**Aissata Ly**  
(Senegal), **ITk**

Instrumentation  
Division, CZT

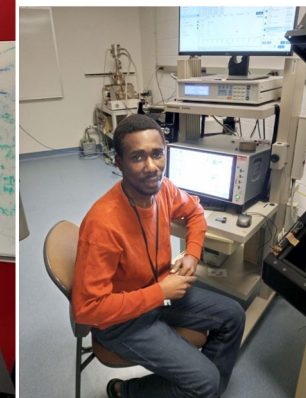


**Dr. Mounia Laassiri**  
(Morocco)

**ATLAS ITk**



**Fatima Bendebba**  
(Morocco),  
**ITk & di-Higgs**



**Augustin Sokpor**  
(Togo), **LGAD**





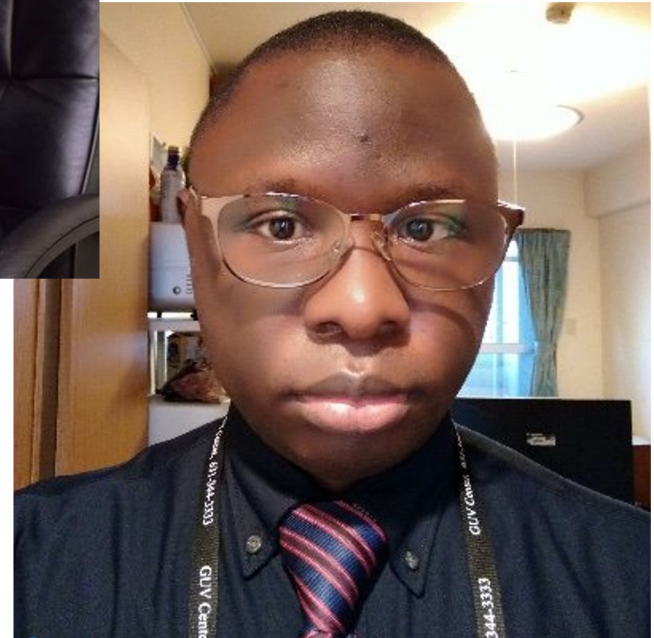
# ASP Alumni impacts...



**Dr. Laza Rakotondravohitra**  
Alumnus of ASP2010  
PhD at Fermilab on MINERvA,  
**thanks to Prof. Young-Kee Kim.**  
Laza was instrumental in getting  
his country, Madagascar, into  
DUNE. Thanks to David Martinez



**Dr. Marie Chantal Cyulinyana**  
Alumna of ASP2016  
PhD, Renewable energies  
Uni. of Johannesburg  
Rwandan Ministry of Education  
Rwandan Association of Women  
in Science & Engineering  
(RAWISE)



**Dr. Benard Mulilo**  
Alumnus of ASP2010  
PhD at RIKEN Japan on PHENIX.  
Now, working to develop a heavy  
ion physics program in his country,  
Zambia, and to join the EIC

# Conclusion

ASP is much more than a school. It is as system of actions with physics as an engine for development in Africa

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Thank you **شكرا** Akpé ka ka  
**Merci**

