

# **African Conference of Fundamental and Applied Physics ACP2021**

## **Working group Summary African Strategy for Fundamental and Applied Physics (ASFAP)**

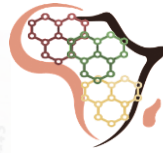
### **Light Sources and Applications:**

Light Sources, Accelerators, biophysics, Earth Science, Atomic & Molecular, Condensed Matter & Materials Physics, Optics & Photonics, Energies, Instrumentation, and Computing

**Sonia Haddad**

**Faculty of Sciences of Tunis, University Tunis El Manar, Tunis, Tunisia**

**11<sup>th</sup> March 2022, Virtual Event**



# Working group Summary African Strategy for Fundamental and Applied Physics (ASFAP)

## Light Sources and Applications

- Summary of the different presentations
- Summary of the discussion sessions

Light Sources, biophysics, Atomic & Molecular, Condensed Matter & Materials Physics,  
Earth Science, instrumentations and detectors

**Missing: Optics & Photonics, Energies, Computing**

Instrumentations and Detectors WG: summary on Thursday 9<sup>th</sup> March

Biophysics

Light Sources

Atomic & Molecular

Earth Science

Condensed Matter,  
& Materials Physics



Tjaart Krüger  
U. Pretoria

Gihan Kamel  
SESAME

Abah Obinna  
Newcastle, UK

Bjorn von der  
Heyden  
U. Stellenbosch,  
SA

Sonia Haddad  
U. Tunis El  
Manar, Tunisia

Ulrich Goerlach  
CNRS-IN2P3  
France

# Working group Summary

## Biophysics WG



Tjaart  
Krüger  
U. Pretoria

3 co-conveners (**only 1 active**)

### Conveners



Dr Emmanuel Nji  
(Biostruct Africa)



Prof. Elsie Effah Kaufmann  
(U. Ghana)



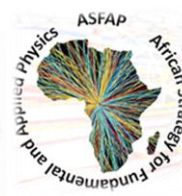
Prof. Tjaart Krüger  
(U. Pretoria)

For more efficiency: **merging of Biophysics WG and other WG ?**

# Working group Summary

## Biophysics WG

7 LOIs



Tjaart  
Krüger  
U. Pretoria



**Biophysics in Africa**  
ZOOM Conference  
22-26 March 2021



Expect more LOIs in the coming months

1. Biophysics Winter School (4 July 2022);
2. Structural Biology Workshop (25-28 April 2022)
3. Extending our biophysics research database
4. Liaison with other WGs
5. Liaison with large international organisations
6. Development of biophysics curricula

# Working group Summary

## Light Sources WG



Gihan Kamel  
SESAME

### GROUP CONVENERS

NAME	AFFILIATION	EMAIL	Gender	African origin/Diaspora
Dr. Thierry d'Almeida <a href="#">ThierryDAlmeidaBio</a>	Benin	tdalmeida[at]semecity.com	M	Benin
Dr. Gihan Kamel <a href="#">GihanKamelBio</a>	Helwan U., Egypt and SESAME Light Source	gihan.kamel[at]sesame.org.jo	F	Egypt
Dr. Lawrence Norris	USA	lnorris[at]lnorris.org	M	African American

Section 1 of 5

### ASFAP Light Sources WG: Survey

This is a survey related to the working group (WG) of light sources facilities – various proposals for a light source for Africa are encouraged, and are always welcome to be discussed and developed. The group is convened by experts in the field and may be subdivided into subgroups for a more efficient management.

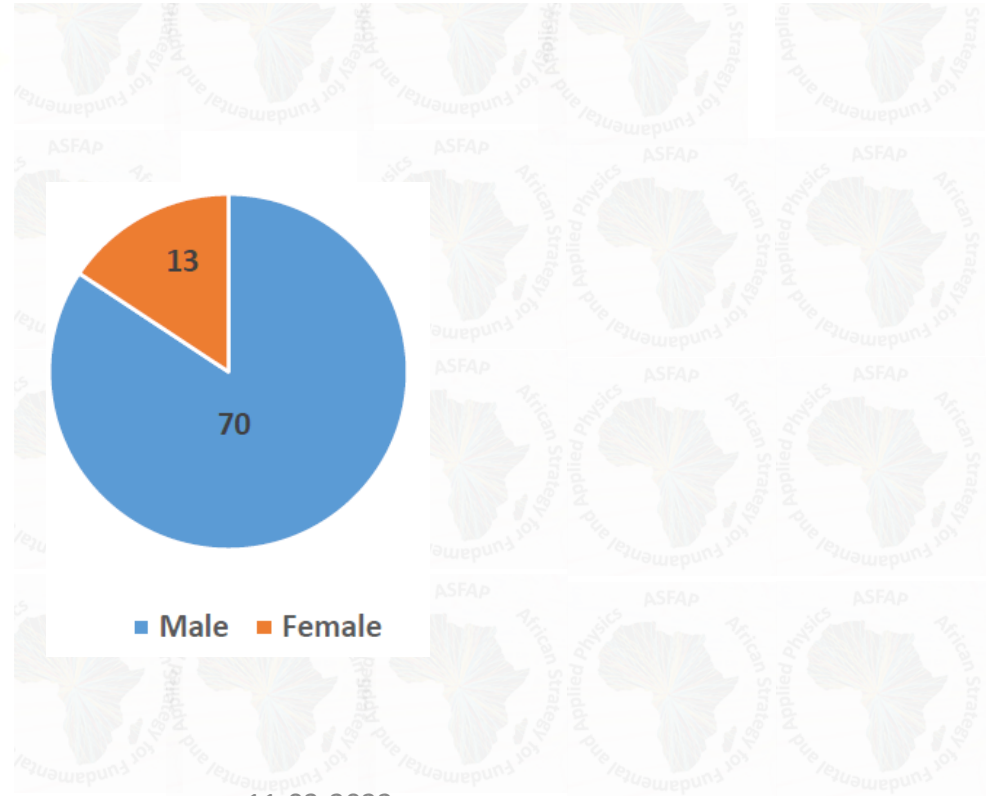
The purpose of this questionnaire is to gain a better understanding and to capture requirements to well prepare and establish collaborative research themes and angles. It also aims at preparing Letter of Intents (LoIs) for the Light Sources Working Group within the African Strategy for Fundamental and Applied Physics (ASFAP).

Thank you for your time and participation in our review process!



<https://forms.gle/avKspY6VQPaZLQ1Q9>

85 responses



group summary- 11-03-2022

# Working group Summary

## Light Sources WG



Gihan Kamel  
SESAME

From the survey...

To **start with common infrastructure** that can be shared among all communities.

By **establishing a scientific council for the African Countries, or through third parties like UNESCO.**

There is a **great need to have a research infrastructure in Africa and light source represents that opportunity to cope with challenges that Africa is facing.**

They should **develop a concerted strategic vision for a light source facility. Engage policymakers and the international community to support a vision.**

- **Built common platform of instrumentations distributed in whole Africa.**
- **There must be intense education on the research capabilities of light sources and their importance to scientific revolution in Africa.**



Middle-East

**Towards an AfLS**



# Working group Summary

## Atomic & Molecular Physics WG



Abah Obinna  
Newcastle, UK

### GROUP CONVENERS

Co-conveners Mailing list: ASFAP-AtomicMolecular-admin[at]cern.ch

NAME	AFFILIATION	EMAIL	Gender	African origin/Diaspora
Dr. Obinna Abah	Queens U. Belfast	O.Abah[at]qub.ac.uk	M	Nigeria
Dr. Stephane Kenmoe	U. of Duisburg-Essen	stephane.kenmoe[at]uni-due.de	M	Cameroon



# Working group Summary

## Atomic & Molecular Physics WG



Abah Obinna  
Newcastle, UK

**ASFAP Atomic and Molecular Physics Mini-Workshop**

lundi 10 janv. 2022 à 13:00 → 16:00 Europe/Zurich

Obinna Abah (Newcastle University, UK) , Stéphane Kenmoe (Universitaet Duisburg-Essen, Germany)

chat.txt video1185101997...

Videoconférence ASFAP Atomic and Molecular Physics **Rejoindre**

Inscription *Vous êtes inscrit(e) à cet événement* **100** **Vérifier les détails**

Participants

- Abdelkrim ZEGHARI
- Abdoul Kadri DIALLO
- Abdulgaffar Abdurrazaq
- ADAM MOHAMMED ALL MOHAMMED
- Ahmad Abulfathi
- Ahmed Abdelhady
- Akinola Olayinka
- Andrew Forbes
- Ankit Mishra

13:00	→ 13:35	<b>Introduction to the African Strategy for Fundamental and Applied Physics (ASFAP)</b>	35m
		Orateur: Kétévi Adikè Assamagan (Brookhaven National Laboratory (US))	
		Introduction to the ...	
13:40	→ 14:10	<b>Overview of Atomic and Molecular Physics in Africa</b>	30m
		Orateurs: Obinna Abah (Newcastle University, UK), Stéphane Kenmoe (Universitaet Duisburg-Essen, Germany)	
		AtomicMolecularPh... AtomicMolecularPh...	
14:15	→ 14:30	<b>Break</b>	15m
14:30	→ 14:40	<b>How to contribute to the Atomic &amp; Molecular Working Group</b>	10m
		Orateurs: Obinna Abah (Newcastle University, UK), Stéphane Kenmoe (Universitaet Duisburg-Essen, Germany)	
14:45	→ 15:15	<b>About the Letters of Interest (LOI)</b>	30m
		Orateurs: Obinna Abah (Newcastle University, UK), Stéphane Kenmoe (Universitaet Duisburg-Essen, Germany)	
15:20	→ 15:40	<b>Discussion</b>	20m
15:45	→ 15:55	<b>Closing remarks</b>	10m

participation 30 – 40% actively attended

**Problem with zoom link!**



Abah Obinna  
Newcastle, UK

## Atomic & Molecular Physics WG

### • Submitted/identified LOIs

7 LOIs in connection with AMP but for primary groups: biophysics, CM, Education, Computing, Optics & Photonics

What should be next:

- Interaction with other WGs
- Merge with Optics and Photonics WG?



## Condensed Matter & Materials Physics WG

Sonia Haddad  
U. Tunis El Manar,  
Tunisia

### GROUP CONVENERS

Co-conveners Mailing list: ASFAP-MaterialsPhysics-admin[at]cern.ch

NAME	AFFILIATION	EMAIL	Gender	African origin/Diaspora
Prof. Lalla Btissam Drissi	Faculty of Science, Mohammed V University in Rabat	drissilb[at]gmail.com	F	Morocco
Prof. Sonia Haddad ( <a href="#">bio</a> )	University of Tunis El Manar	sonia.haddad[at]fst.utm.tn	F	Tunisia
Dr. Samuel Chigome ( <a href="#">bio</a> )	Botswana Institute for Technology Research and Innovation	SChigome[at]bitri.co.bw	M	Botswana



# Condensed Matter & Materials Physics WG



## AFRICAN STRATEGY FOR FUNDAMENTAL AND APPLIED PHYSICS (ASFAP)

WORKSHOP ORGANIZED BY THE CONDENSED MATTER AND MATERIALS PHYSICS WORKING GROUP

December 15<sup>th</sup>, 2021  
3 pm - 6 pm (GMT+2)

FREE REGISTRATION: TO JOIN, CLICK ZOOM LINK BELOW

<https://us02web.zoom.us/join/register/tZ0kc-CtrzojG9zC50pCbeiCegnVvrRZh1hP>

**Moderator:** Prof Balla Diop Ngom

15:00 – 15:20 Introduction to ASFAP  
Dr Ketevi Adikle Assamagan

15:20 – 15:40 Modalities for growing condensed matter physics, solid state physics and material science in Africa  
Prof Nithaya Chetty

15:40 – 16:00 What should be next for Condensed Matter and Materials Physics in Africa?  
Prof Malik Maaza

16:00 – 16:10 How to contribute to the Condensed Matter and Materials Physics Working Group  
Dr Samuel Chigome

16:10 – 16:40 About the Letter of Intent (LOI) for the Working Group  
Prof Sonia Haddad

16:40 – 17:50 Open discussion

17:50 – 18:00 Closing remarks  
Prof David Dodoo-Arhin

### SPEAKERS

**Dr Ketevi Adikle Assamagan**  
Co-founder, African Strategy for Fundamental and Applied Physics (ASFAP)

**Prof Nithaya Chetty**  
Dean, Faculty of Science  
University of the Witwatersrand

**Prof Malik Maaza**  
UNESCO-UNISA Africa Chair, Nanoscience and Nanotechnology

### ORGANIZERS

**Dr Samuel Chigome**  
President, African Materials Research Society (AMRS)

**Prof Sonia Haddad**  
Head, Condensed Matter Physics Laboratory  
University of Tunis EL Manar

**Prof Balla Diop Ngom**  
Head, Quantum Photonics, Energy and Nanofabrication Laboratory  
University Cheikh Anta Diop

**Prof David Dodoo-Arhin**  
Head, Hybrid and Energy Materials Laboratory  
University of Ghana

### SPONSORS

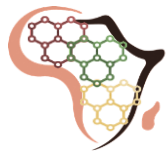


## Online Workshop

## Date 15<sup>th</sup> December 2021

## 77 regular attendees (of 200 !!!)

## 13 of 64 LOIs in CM !



## Condensed Matter & Materials Physics WG

### Survey (google form)



## Condensed Matter & Material Physics WG: Survey

This survey aims to help participants to prepare a Letter of Intent for the Condensed Matter and Materials Physics Working Group within the African Strategy for Fundamental and Applied Physics (ASFAP)

sonia.haddad@fst.utm.tn [Switch account](#)

\* Required

Email \*

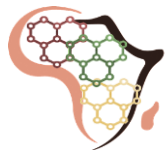
Your email

First and Last names \*

**126 responses on 8<sup>th</sup> March**

**During ACP ...**

**198 responses (rise of 55%)**



## Survey outcomes

LOIs

1. To develop roadmap that will enhance teaching and learning of Condensed Matter and Materials Physics in Africa
2. Make research and development of new materials priority in most of our centre of excellence we have in Africa.
3. Create conducive environment for younger Physicists to engage in Condensed Matter and Materials Physics in Africa most especially in computational and theoretical Condensed Matter and Materials Physics.
4. Effort should be made to close the gap between our research institute/University and various industries in the fields of Condensed Matter and Materials Physics in Africa.

Organization of exchange programmes which will promote new research ideas in the field and advocating for more female researchers in the field

First, Au commission must commit to funding STEM from GDP. second, If not feasible Au must facilitate establishment of Regional research Centres in Materials Physics with fully fledged funding. Or funding programs to train PGs in established universities across Africa.

# Working group Summary

## Earth Science WG



Bjorn von der Heyden  
U. Stellenbosch, SA

### GROUP CONVENERS

Co-conveners Mailing list: [ASFAP-EarthScience-admin\[at\]cern.ch](mailto:ASFAP-EarthScience-admin[at]cern.ch)

NAME	AFFILIATION	EMAIL	Gender	African origin/Diaspora
Dr. Bjorn von der Heyden	Stellenbosch University	<a href="mailto:bvon[at]sun.ac.za">bvon[at]sun.ac.za</a>	M	South Africa
Alassane traoré	University Cheik Anta Diop	<a href="mailto:alessanemeister[at]gmail.com">alessanemeister[at]gmail.com</a>	M	Senegal



# Working group Summary



Bjorn von der Heyden  
U. Stellenbosch, SA

## Earth Science WG

**Approach:** call for LOIs under the umbrella of organizations, to request that they disseminate through their existing networks and mailing lists

## No LOIs for Earth Science WG

## What will be next...

**One hour mini-symposium** planned for direct engagement with the African Earth Sciences community.

- 10 minute introduction to ASFAP
- 15 – 20 minute keynote by Dr Moussa Bounakhla
- improved list of individuals for direct contact, and for determining a list of questions for a **questionnaire**.





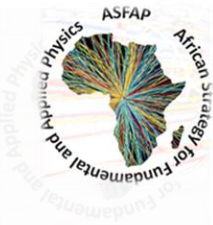
Ulrich Goerlach  
CNRS-IN2P3  
France

## Instrumentation and detectors WG

Instrumentations and Detectors WG: summary on Thursday 9<sup>th</sup> March

- 1. Small regional centers for instrumentations and detectors**
- 2. Center for Quantum Physics**
- 3. Center for Education (experimental Physics teaching)**

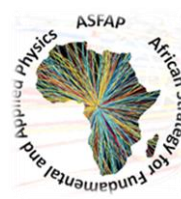




### WG methodology

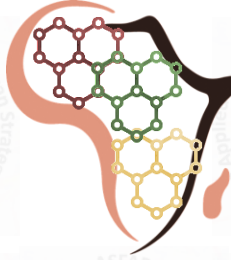
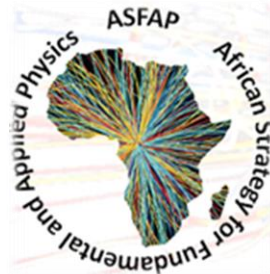
1. **Merging some WGs** to reach a larger community and attract more LOIs for more efficient approach
2. Have **focal points** in different countries to advertise about ASFAP
3. Use **official circuits** to attract LOIs (calls via Ministries, organizations, national and international societies)
4. **Synergy between WGs: booster the interaction** (share surveys, common events, meetings, data...)
5. For workshops organized by WG: manage to have greater ratio between the number attendees/number of registered participants (**less than 50% attend**)
6. **Contact registered participants** in the events to advertise about ASFAP
7. **Send surveys to participants during any African events** to have a large participation
8. **Attract more Women to ASFAP** (interact with Engagement WG)

# Working group Summary



## What are the outcomes?

1. Define the **priorities for regional centers**
2. Keep **interaction with ICTP-EAIFR (Rwanda)** and other regional institutions
3. Join forces to build a **virtual Light sources university** (and for other disciplines)
4. **Mount Regional Centers for instrumentations and detectors** (small and big equipment)
5. Center for **Quantum Physics**
6. Center for **Education** (experimental **Physics** teaching)



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<https://indico.cern.ch/event/1061921/>