

# *ASFAP Instrumentation and Detector Working Group*

*Ulrich Goerlach, Paul Gueye, Nieldane Stodart*

- Transverse working group related to all physics WG
- For instrumentation we can build on many existing facilities, but need a big step forward for the future of physics in Africa
- Starting from existing LOIs and what has been said at the ACP 2021 conference we started to approach the authors directly
- Two key points emerged :
  - I. Need for improved education in physics
  - II. Need for additional experimental facilities

# *What next, or what should be the African strategy?*

- **Important to have one flagship like African Light Source (AfLS), others**
  - Time scales of at least 10 years, important budget (1B\$)
  - Carried by nearly all African countries
- **Centres of excellence, carried by several countries**
  - Quantum physics, Nanophysics, Radio-astronomy, particle physics, accelerators, FEM/TEM, laser systems
  - Include experimental facilities
  - Partially building on existing facilities
  - International partnerships (contributions, formation...)
  - Research and education
  - Time scales of 3-6 years ???
- **Local facilities for specific instrumentation**
  - 1-3 countries,
  - International partnerships
  - Planning and ask for funding from this year onwards
  - Research and Education

**We have to look at the proposals and start working on the most promising ones !**

# Submitted LOIs related to instrumentation,

**Categories:** but many other projects were mentioned during ACP2021!

- **Extensions of existing facilities,**
  - (Radio)-Astronomy: 51, 54, 56, 67;
  - Accelerator centres: 17, 24)
- **New facilities**
  - Astronomy: local observatories for North Africa (14),
  - Astroparticle underground (15),
  - African millimeter telescope(33),
  - Am-Be neutron source(39)
  - AfLS
  - Instrumentation for AfLS (58, 59, 61,66)
- **Centres of Excellence (the instrumentation part is not always clear)**
  - Graphen Flagship (4)
  - Energy centre of excellence (5)
  - NANOAFNET(10, Nano science)
  - Quantum physics and biology (19, 23, 27, 49, )
  - Education, ICEPA (68)

# Instrumentation & Detectors Working Group

*Thursday 5 May 2022, 14:00 → 16:00*

<b>14:00</b>	→ 14:10	<b>Introduction and purpose of the meeting</b>	🕒 10m
<b>Speakers:</b> Nieldane Stodart (iThemba LABS, National Research Foundation (ZA)), Paul Gueye (Facility for Rare Isotope Beams), Ulrich Goerlach (Centre National de la Recherche Scientifique (FR))			
<b>14:10</b>	→ 14:30	<b>THE USE OF An Am-Be NEUTRON SOURCE FOR TEACHING AND APPLIED RESEARCH</b>	🕒 20m
<b>Speaker:</b> Prof. Sunday A. Jonah (Centre for Energy Research and Training, Ahmadu Bello University, )			
<b>14:30</b>	→ 14:40	<b>Questions and discussion</b>	🕒 10m
<b>14:40</b>	→ 15:00	<b>Low Frequency (&lt; 1GHz) Radio Interferometric Arrays and Radio-Astronomy/Cosmology</b>	🕒 20m
<b>Speaker:</b> Dr Patrice M. Okouma (Rhodes University in Grahamstown)			
<b>15:00</b>	→ 15:10	<b>Questions and discussion</b>	🕒 10m
<b>15:10</b>	→ 15:35	<b>The first millimetre-wave radio telescope in Africa: the Africa Millimetre Telescope</b>	🕒 25m
<b>Speaker:</b> Michael Backes			
<b>15:35</b>	→ 15:45	<b>Questions and discussion</b>	🕒 10m
<b>15:45</b>	→ 16:00	<b>General Discussion, recommendations, next meeting</b>	🕒 15m
Was this meeting useful, Recommendations for the three projects Proposal for next meeting (date and which LOIs)			

# Conclusions of today?

# Instrumentation & Detectors Working Group

*Thursday 9 June 2022, 14:00 → 16:00*

- **Unique Research Facilities at the SSC Laboratory in South Africa #17**
- **Ion Beam Analytical Techniques at iThemba LABS #24**
- **African Graphene Flagship Letter of Intent #4**
- **UNESCO-UNISA LoS and LoI NANOAFNET #10**

*Thursday 7 July 2022, 14:00 → 16:00 TBC*

- **Quantum physics and biophysics ) TBC**

*Thursday 1 September 2022, 14:00 → 16:00 TBC*