

**Celebration of the discovery
of the Higgs boson
Anniversary from Africa**

Monday 4 July 2022 - Monday 4 July 2022

Book of Abstracts

Contents

African Physical Society	1
Opening from the African Physical Society	1
Review and Prospects of Higgs physics from ATLAS since the discovery	1
Review and Prospects of Higgs physics from CMS since the discovery	1
Morocco: Historical perspective up to Higgs discovery	1
Morocco: Current status and future perspectives	2
Egypt: Historical perspective up to Higgs discovery	2
Egypt: Current status and future perspectives	2
South Africa: Historical perspective for the SA-CERN Programme	2
South Africa: Current status and future perspectives	2
Selected contributions from the African diaspora	2
Closing from African Academy of Sciences	2
Selected contributions from the Non-Member Countries	3
Contribution from the ASFAP Working Group on Particle Physics	3
A High-Granularity Timing Detector (HGTD) for the Phase-II upgrade of the ATLAS detector	3
A High-Granularity Timing Detector (HGTD) for the Phase-II upgrade of the ATLAS detector	3
QCD background estimation for top-antitop resonances search in the lepton plus jets final state with the ATLAS experiment at the LHC	3
Performance of missing transverse momentum reconstruction: muon-jets overlap removal	4
UJ @ ATLAS : History, Analysis, Operations, Computing, Tech transfer, Outreach	4

Opening from the AfPS / 1

African Physical Society

2

Opening from the African Physical Society

Corresponding Author: ahmadou.wague@ucad.edu.sn

President of the African physical Society

3

Review and Prospects of Higgs physics from ATLAS since the discovery

Corresponding Author: bill.murray@stfc.ac.uk

Prof. Bill Murray was the ATLAS Higgs Convener in the run-up to Higgs discovery 2012 and then Physics Coordinator. More recently he has coordinated the ATLAS Tracking In Dense Environments group and is currently Higgs and Diboson Searches Convener. He also engages with future collider projects. The Warwick ATLAS Group, led by Prof. Bill Murray, have made substantial contributions to the ATLAS trigger and physics analysis and have held several coordination roles within the collaboration. A focus of the new appointment will be a substantial role in delivering aspects of Warwick's responsibilities for the ATLAS upgrade.

4

Review and Prospects of Higgs physics from CMS since the discovery

Corresponding Author: albert.de.roeck@cern.ch

Professor Dr. Albert De Roeck is a senior research scientist and staff member at CERN and a professor at the University of Antwerp, Belgium. He obtained his Ph.D. at the University of Antwerp and then spent ten years at the German particle physics laboratory, DESY, where he and his team made very precise measurements of the quark and gluon structure of the proton, and performed precise tests of the strong force. To pursue his interest in discovering new physics at particle colliders, in particular supersymmetry and extra dimensions, he returned to CERN. During the last ten years, he has played a significant role in the preparation of one of the experiments at the LHC: the Compact Muon Solenoid (CMS). De Roeck is one of the leaders in the CMS physics program and was the deputy spokesperson of the experiment in 2010 and 2011. He is presently the convener of the Higgs search physics group.

5

Morocco: Historical perspective up to Higgs discovery

Corresponding Author: abdeslam.hoummada@cern.ch

6

Morocco: Current status and future perspectives

Corresponding Author: driss.benchekroun@cern.ch

7

Egypt: Historical perspective up to Higgs discovery

Corresponding Author: reham.aly@cern.ch

8

Egypt: Current status and future perspectives

Corresponding Author: ahmed.ali.abdelalim@cern.ch

9

South Africa: Historical perspective for the SA-CERN Programme

Corresponding Author: zeblon.vilakazi@gmail.com

10

South Africa: Current status and future perspectives

Corresponding Author: lerothodi.leonard.leeuw@cern.ch

11

Selected contributions from the African diaspora

Corresponding Author: ketevi.adikle.assamagan@cern.ch

12

Closing from African Academy of Sciences

Corresponding Author: c.ngila@aasciences.africa

The Acting Executive Director of the African Academy of Sciences (AAS)

13

Selected contributions from the Non-Member Countries

Corresponding Author: oumar.ka@ucad.edu.sn

Université Cheikh Anta Diop de Dakar, Sénégal
Founding member and current President of the Senegalese Physical Society
Co-Vice President of the West African Physical Society

14

Contribution from the ASFAP Working Group on Particle Physics

Corresponding Author: mchabab@ucam.ac.ma

Posters / 15

A High-Granularity Timing Detector (HGTD) for the Phase-II upgrade of the ATLAS detector

Corresponding Author: asmaa.aboulhorma@cern.ch

16

A High-Granularity Timing Detector (HGTD) for the Phase-II upgrade of the ATLAS detector

17

QCD background estimation for top-antitop resonances search in the lepton plus jets final state with the ATLAS experiment at the LHC

Corresponding Author: badr-eddine.ngair@cern.ch

18

**Performance of missing transverse momentum reconstruction:
muon-jets overlap removal**

Corresponding Author: mohamed.zaazoua@cern.ch

19

**UJ @ ATLAS : History, Analysis, Operations, Computing, Tech
transfer, Outreach**