

# 2020 Pan-African Workshop on Frontiers in High Energy Physics

**March 30 – April 03, 2020**

**University of Rwanda, Kigali, Rwanda**

High Energy Physics (HEP) has seen some landmark discoveries over the past few years. The observation of the long-elusive Higgs boson at the Large Hadron Collider (LHC) in 2012, and the first detection of the gravitational waves by the LIGO experiment in early 2016 are some of its recent crowning achievements. But despite these experimental breakthroughs, there are some phenomena in nature, the existence of dark matter (DM) and the baryon-antibaryon asymmetry of the Universe to name just two, any theoretical explanation for which is still not backed by experimental evidence. The recent discoveries themselves have perhaps opened more questions than they have answered. The theoretical HEP community across the globe has, therefore, doubled up its efforts in pursuit of answers to all these questions, which has resulted in a multitude of new models, frameworks and methods being proposed. On the experimental front, a number of new facilities for probing neutrinos, the DM, and the gravitational waves are either nearing their launch or in the final stages of their planning. Even an extended run of the LHC, aimed at collecting data much beyond its design luminosity of 300/fb, has recently been approved, and a subsequent upgrade with twice its current centre-of-mass energy is also under consideration.

This immense activity in the HEP domain is more likely to bear early fruits with sufficient participation from all the regions of the globe. However, the region that is currently lagging behind the most in this quest is Africa. There is a growing need to not only enhance the number of quality HEP researchers in this region, but also to build stronger ties between the existing academics in Africa and the HEP community from the leading nations. This workshop, to be hosted by the ICTP-East African Institute for Fundamental Research, Kigali, aims to bring together the experts in various subdomains of theoretical HEP based in Africa, so that they can lay the foundations of a rigorous regional network that is capable of producing world-class physics graduates. At the same time, HE experimentalists based in the EU will update the workshop participants on the status and challenges of the various experimental facilities. During the workshop, each of the guest speakers, which include

- Prof. Shaaban Khalil (Zewail City of Science and Technology, Egypt) - Models of new physics,
- Prof. Abdesslam Arhrib (Abdelmalek Essaadi University, Morocco) - Phenomenology of Extended Higgs Sectors,
- Dr. Jonathan Shock (Cape Town University, South Africa) - String Theory,
- Prof. Amine Ahriche (University of Jijel, Algeria) - Neutrino and Related Topics,



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will give 3-hour lectures on their respective field of expertise. These will be complemented by experimental overview talks by

- Prof. Pasquale Serpico (LAPTH, France) - Dark Matter searches and results,
- Dr. Rachid Mazini (CERN, Geneva) - LHC searches and results.

Graduate students and postdoctoral research fellows working in HEP are welcome to apply for participation in this workshop. Full or partial financial support is available for a limited number of participants. Priority will be given to applicants who are willing to give oral presentations based on their recent research projects. There is no registration fee for the workshop.

Deadline for application: February 29, 2020.

For further information, contact: [smunir@eaifr.org](mailto:smunir@eaifr.org).

To register, fill in the form here: <https://forms.gle/8iP8s65SHaw1b43K6>