

**FIRST ASIA-EUROPE PHYSICS SUMMIT, TSUKUBA, JAPAN. MARCH 24-26,
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PHYSICS IN AFRICA

Mr. Chairman, distinguished ladies and gentlemen, it is a great honour and privileged to be invited in my position as the President of African Physical Society to participate and address the First Asia-Europe Physics summit which is taking place in Japan. I thank the organizers for the invitation. I also thank the Director General of CNRS, France for providing me with financial support to participate in this summit. I bring to you hearty greetings from Africa a continent with 53 countries and a population of 850 million people. I am very happy that I have this opportunity to address physicists from Asia. This is so because at the recent launch of African Physical Society we received over thirty six good will and congratulatory messages from national physical societies from Europe, North, South and Central America but none from Asia. It therefore appears that the Asia physics community is not much aware of physics in Africa. We will like to collaborate and cooperate with national physical societies and physicists from Asia in the same way as we are doing with the other parts of the world.

The African physical society was launched on the 12th January 2010 in Dakar, Senegal, under the distinguished patronage of his excellence Maitre Abdulaye Wade, President of the Republic of Senegal. There were 110 African physicists from twenty one African Countries and all national physical societies in Africa, ten of them were represented. The society has over one thousand (1000) members across Africa

Some of the reasons for the formation of the African Physical Society were lack of cohesive and functional links among African Physicists, and the observation that there is a great scientific and technological gap between the industrialized and

developing countries of the world, particularly countries in Africa and that physics forms the basis of modern science and technology: It generates jobs, it simulates industries, it improves health, it saves lives, it connects the world and so on.

It was also noted that science constitutes an integral part of the culture and heritage of modern society and for this reason the people of Africa like other people elsewhere cannot be left out of the stream of this culture and heritage in which our contemporary civilization is founded.

African Physical Society is a professional society that advocates for physics and physicists at the African Union, among universities, research institutions and corporations in primary and secondary schools and in the African general public. A society that promotes effective contacts and cooperation among African physicists and collaborates with national and international organizations with similar objectives in furthering scientific and technological activities in Africa. A society that organizes meeting, conducts professional development workshops, suggests standard of professional conduct, provide information and all the things that professional associations do.

The membership model for the African Physical Society is one where there are member societies, industries and research institutes membership as well as individual membership. This plan for the African Physical Society is not to replace any national Physical Society actually it is quite the opposite. It will endeavor to build national physical societies where one does not exist and provide a forum for these new ones and existing ones to exchange information, personnel and other resources across the continent of Africa.

Importantly, the Africa Physical Society is incorporating as a subsidiary organization the African Association of Physics Students. Because there is always a change in the student body from year to year, a student organization does much better if there is a permanent organization that helps keep the organization active.

One of the important action of the society was a resolution supporting South Africa's bid to host the Square Kilometre Array (SKA) radio telescope. Among the reasons given for the support were that SKA will underscore Africa's capability in

sciences, technology and innovation, the enormous investment in infrastructure will contribute to economic growth in the region, in addition the requirement for ultra-high speed internet across Africa to operate the SKA will lead to improved ICT infrastructure and access for millions of people

The most important and urgent needs in Africa are capacity building in physics both (human and infrastructure) and research collaboration between South-South and North-South. Any capacity-building programme in physics in Africa must have the following objectives:

Human capacity Building

- Increase participation of disadvantaged groups in physics such as women and youth.
- Promote regional and international collaboration and cooperation in research and training.
- Stimulate growth in the utilization of newer and emerging technologies
- Promote investment in human resource development including training for sustainable management of physics equipments

In the area of human capacity building, sandwich PhD programme is recommended. For in the past a number of Africans have been sent to advanced countries for PhD programmes. The return rate is minimal. Those trained were easily absorbed by educational and research institutions in these countries. To overcome this, a sandwich programme is being advocated.

The concept underlying the implementation of the programme is that a PhD student takes academic courses in a university in Africa.

- Students goes to a university abroad to start a thesis research with a foreign advisor
- student return home to complete his or her thesis with a local advisor

- students receives a PhD from a local university

The sandwich programme has now being adopted by a number of African countries and has proved very successful by minimizing the brain drain.

Infrastructure

In order to effectively attain an operational capacity in science and technology, it is a necessary prerequisite that adequate infrastructure is established in Information and Communication Technology (ICT) to enable African researchers and educationists to optimally utilize their resources. Thus African Physicists must be able to;

- Access information database
- Establish electronic networking for dissemination of science and technology information.
- Develop a virtual University which will link African Universities and centres.

Research collaboration, academic exchange programmes

- Exchange of physicists, collaborative training for research and development, access of African Physicists to international facilities, Intra and extra African students, post doctoral and faculty exchanges, active participation of African Physicists in international physics bodies
- University-industrial links, internship, joint research programmes, sharing of laboratory facilities/ infrastructure

I shall now give concrete initiatives in capacity building in physics in Africa through international cooperation within and outside Africa.

Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy offers training and research opportunities to African physicists in several areas of physics.

High energy physics, condensed matter physics, medical physics, theoretical physics, environmental physics and earth sciences. It has several affiliated centres in Africa. With the financial support of ICTP Laser, atomic, Molecular and optical sciences (LAM) network has been established. The network has sites in 36 African universities from Egypt to South Africa. Since its inception in 1991 it has organized several international and regional workshops and conferences in Africa and has a close relationship with the International Commission of Optics. It has five centres of excellence. These centres run MSc and PhD programmes.

There is also African Laser Centre (ALC) located in South Africa with six nodes in various countries in Africa. It consists of a network of thirty laboratories from all regions of Africa that engage in laser, optics and spectroscopy research training and innovation. ALC is recognized as a flagship research and Development project by the African Union. The goal of the ALC is to enable African Nations to collaborate with each other and play a major role internationally in utilizing laser to advance science and technology, thereby contributing to the strengthening of their economies education and welfare of their people. There is an active network located at the iThemba Laboratory Cape Town, South Africa, for development of nanosciences and technology in Africa.

In conclusion, African Physical Society wants to cooperate and collaborate with physicists from Europe and Asia in the areas of human capacity building, infrastructure development, joint research activities and academic exchange programmes.

Thank you.