American Corner@Técnico

The Road Towards an African Light Source

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The Road Towards an African Light Source

Africa is the only habitable continent without a synchrotron light source. In this presentation, we will describe the history of synchrotron light source usage by African researchers and the 20-year effort to bring a multinational synchrotron facility to the African continent. We will highlight two major efforts. The first is *LAAAMP* (Light sources for Africa, the Americas, Asia, Middle East, and Pacific), whose goal is to enhance advanced light source and crystallographic sciences in developing countries. The second is the African Light Source Conceptual Design Report, which is due to be completed by September 2023. Finally, we will report on new initiatives to bring a multinational synchrotron light source to the Greater Caribbean Region and to enhance synchrotron science in Central Asia.

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Sekazi Kauze Mtingwa is Principal Partner at TriSEED Consultants and Administrative

Judge with the US Nuclear Regulatory Commission. He is a Fellow of the American Physical Society (APS), American Association for the Advancement of Science (AAAS), and National Society of Black Physicists (NSBP). In the US, he co-founded NSBP and National Society of Hispanic Physicists, while internationally, he co-founded the African Light Source Foundation, Union of Physicists from Portuguese Speaking Countries, African Laser Centre, African Physical Society, Julius Nyerere University of Agriculture and Technology in Tanzania, African Institute for Mathematical Sciences in Ghana, Light sources for Africa, the Americas, Asia, Middle East, and Pacific (LAAAMP), X-TechLab in Benin, and Greater Caribbean Light Source initiative.

Mtingwa played an important role in designing and constructing accelerator systems at Fermilab used to discover the top quark. He is co-recipient of the APS's 2017 Robert R. Wilson Prize for Achievement in the Physics of Particle Accelerators for the theory of intrabeam scattering, which played a crucial role in the discovery of the top quark at Fermilab, Higgs particle at CERN, quark-gluon plasma at Brookhaven National Laboratory, and achieving ultra-high brightness in the latest generation of synchrotron light sources. Mtingwa was the first African American to be awarded an APS prize, its highest category of honors.

Mtingwa received the 2015 Distinguished Service Award from the American Nuclear Society for chairing a 2008 study on 21st century nuclear workforce needs that led to the US Department of Energy's allocating 20% of its nuclear fuel cycle R&D budget to university programs, thereby saving a number of those programs.

For his mentorship of students, Mtingwa received the 2017 US White House Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring.

Mtingwa serves as President of InCREASE, which seeks to increase access to national laboratories by Minority-Serving Institutions, chaired the International Union of Pure and Applied Physics C13 Commission on Physics for Development, serves as Co-Chair of the Greater Caribbean Light Source Initiative, and served as Founding Deputy Chair of the African Light Source Foundation, for which he serves as Editor-in-Chief of the facility's Conceptual Design Report.

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