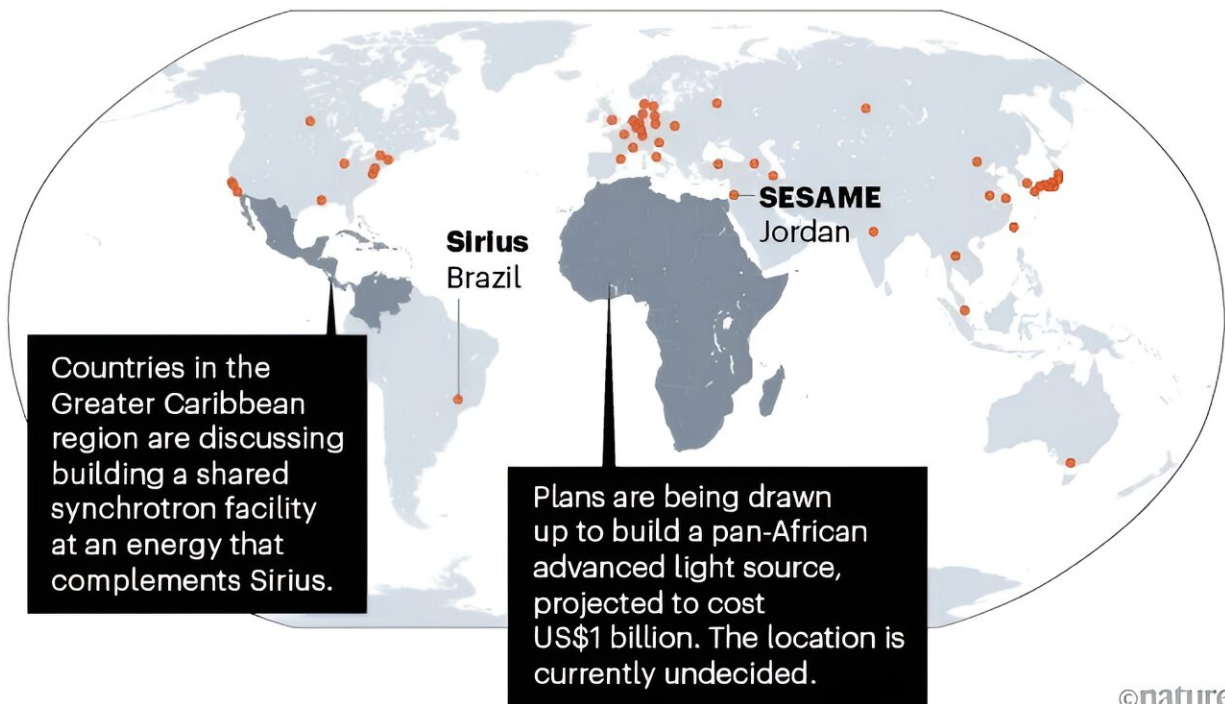


A project to build a new synchrotron in the Greater Caribbean

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ADVANCED LIGHT SOURCES: PATCHY ACCESS

Synchrotrons and other advanced light sources for research are spread unevenly around the world. Whereas countries such as the United States, Germany and Japan host many of these large facilities, Africa has none and South America and Central Asia are also underserved.



Credit: <https://lightsources.org>

Researchers from the Universitat Politècnica de València (UPV), the Universidad Autónoma de México (UNAM), and the Centro Internacional de Física de Bogotá; are working on a project to build a new synchrotron in the Greater Caribbean. The latest issue of *Nature* [features](#) an article on the history of this initiative and the steps being taken to make it a reality.

"The project we are working on is called LAMISTAD (Latin American International Synchrotron for Technology, Analysis, and Development) and aims to make the Wider Caribbean Light Source a reality."

"In the world of science, large facilities not only pave the way for revolutionary discoveries but also contribute to the development of high capacities and equality between regions: where they are built, there are opportunities for employment, improvement of skills, and progress in key infrastructures," points out Pedro Fernández de Córdoba, researcher at the Research Institute for Pure and Applied Mathematics and professor at the School of Industrial Engineering-UPV.

Among these vast facilities, synchrotrons stand out for their great scientific and industrial potential. They are essential in fields such as condensed matter physics, the study of materials, the development of new drugs and vaccines, and the characterization of soils and biological processes.

However, access to these infrastructures is uneven worldwide. Low- and [middle-income countries](#), particularly in the Greater Caribbean and Africa, need help to use these cutting-edge [scientific tools](#).

"We are developing the LAMISTAD project precisely to try to reduce this gap and fully exploit the scientific potential of these regions," adds

Juan Angel Sans, a researcher at the Research Institute of Design for Manufacturing and Automated Production and full professor at the School of Aerospace Engineering and Industrial Design -UPV (ETSIADI).

The work of Pedro Fernández de Córdoba and Juan Ángel Sans is focused on the technical part of the project, as well as on the promotion of communication actions; among other things, they are part of the team that is preparing a proposal that will soon be submitted to UNESCO to obtain support for this project.

"The road to the construction of the Greater Caribbean Light Source will not be easy, but its realization could represent a significant step towards equity in access to science, technology, and regional development. Making this vision a reality will require strong support from the scientific community, policymakers, and [international organizations](#) focused on developing science and technology," adds Pedro Fernández de Córdoba.

New Latin American synchrotron linked to Africa

There is already a synchrotron in Latin America, at Campinas in Brazil. The infrastructure promoted by LAMISTAD would complement and make it possible to address problems closer to the area for studies in agriculture, archaeology, or cultural heritage.

In addition, the LAMISTAD project is creating synergies with the African initiative to launch the African Light Source, which aims to create a pan-African synchrotron facility. "The foundations are being laid for a link between Africa and Latin America that will boost these facilities in both parts of the world," adds Juan Angel Sans.

Along with the UPV researchers and professors, the article is signed by

Víctor M. Castaño from UNAM and Galileo Violini, director emeritus of the International Physics Centre of Bogota.

More information: Victor M. Castaño et al, Big science in Latin America: accelerate particles and progress, *Nature* (2024). [DOI: 10.1038/d41586-024-00598-4](https://doi.org/10.1038/d41586-024-00598-4)

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