# The LAMISTAD Project, a Latin American synchrotron in the Caribbean

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The Greater Caribbean Light Source Initiative (GCLSI) is developing with unexpected acceleration. The possibility of a second synchrotron in Latin America is viewed with interest in the region: by SIRIUS, the Campinas synchrotron, because of the possibility of complementarity, by the Mexicans, who had been pursuing the creation of a national synchroton for many years and who are partners in this project, and of course by other countries who see in it a possible factor for the growth of their scientific communities, an especially important goal for Central America and the Caribbean islands.

A series of presentations, at the World Science Forum in Cape Town, at SIRIUS, SLAC and Berkeley have verified the interest of the international community in the project, which, through LAAAMP (Light Sources for Africa, the Americas, Asia, Middle East and Pacific), is promoted jointly with that of the African Light Source.

One of the project's short-term goals is the strengthening of international support. Ideally, UNESCO would support the two projects as it did, twenty years ago, with SESAME, while recognizing that there were strong geopolitical motivations in that case. A synchrotron in the Caribbean would be aligned with the goals of United Nations Sustainable Global Development Agenda, which, for many countries in the region, can tackle head on their major social, economic, and political challenges, and would be a catalyst for greater regional integration, particularly among the English-speaking and Spanish-speaking Caribbean. Thus, one of the biggest challenges the project will now face is convincing politicians and the civil society that the costs of investing and operating this scientific infrastructure are compatible with the economies of their countries and reasonable in terms of opportunity cost, since social priority needs will be addressed.

In September, the project will be the subject of a plenary session of the United Nations Global Science Forum held in conjunction with the General Assembly. Many contacts have been established in Italy where, also in September, it will be discussed at the Italian Physical Society Annual National Congress.

The successful realization of the project demands a major training effort. The problem does not arise so much in identifying potential users. The versatility of synchrotrons makes them attractive to a wide pool of multi-disciplinary users, whose scientific level is often high. For example, Mexico already has an important group of synchrotron users. The main challenge will instead be the training of staff, and machine technicians. SESAME's experience shows that it can be done while constructing the facility, although it is clear that, since these skills are in high demand, a quantitatively significant and redundant training will be required, in order to absorb the inevitable losses.

The location is not yet decided. There is much evidence in favor of Mexico, where, in the state of Hidalgo, land has been donated to the project in the "Ciudad del Conocimiento" (Knowledge City). At the moment, the project is in standby, but it can be reactivated. However, other possibilities cannot be ruled out. The winner venue would have to tick all the boxes of the selection criteria plus a reasonable national financial contribution that should match the regional funding, for which an agreement for a mechanism like that for CERN could be a model. In any case, the project would have to be green and a low operating cost initiative. Again, SESAME shows that, by going solar, electricity usage costs can be strongly reduced.

The electron energy is not yet decided: most likely options are 1.5 or 3 GeV, but this is a matter to be decided looking at construction costs, foreseeable applications of greater practical interest, and the possible need to build even lower-cost facilities in countries other than the host country.

These issues and many others related to this project will be discussed between May 29th and June 5th in the Dominican Science Week's symposium organized with an unusual format, as it consists of six legs that will take place in Colombia, Jamaica, Spain, Mexico, El Salvador and the Dominican Republic. The results of the Symposium will in turn be presented in the 18th Dominican Science Congress, where a panel discussion on the subject is planned.

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