



The Cuban National Program of Basic Sciences: Current Perspectives and Opportunities for Cuba - USA Scientific Collaboration for Mutual Benefit

Basic Sciences Today in Cuba



BASIC SCIENCES

The basic sciences, understood in their broadest sense, are just the base or foundation of all other action of application of knowledge and innovation for the creation of welfare and economic value in contemporary human societies.

The development and well-being of a country is based on an adequate level of research and scientific training in the basic sciences, even though its tangible results remain relatively invisible, like the foundation of a building.

BASIC SCIENCES IN CUBA

Cuba began the development of state of the art basic sciences in the 60's of the past century.

It had a strong government support, contracting foreign scientific leaders for research and training young scientists in the country and encouraging PhD's promotions among them, either in Cuba or abroad.

BASIC SCIENCES TODAY IN CUBA

Cuban research in basic and natural sciences as well as the associated doctoral training has historically been, and still mostly is, sustained as an unspecific part of the national budget assigned to universities and some relevant research centers.

BASIC SCIENCES TODAY IN CUBA

As part of the profound transformations currently occurring in Cuban science policies the **NATIONAL PROGRAM FOR BASIC AND NATURAL SCIENCES (NPBNS)** is being financed by the Ministry of Science, Technology and the Environment supporting competitive projects of this kind of research elsewhere in the country.

This has meant an important step forward for sustaining the activity, *although still insufficient given the particularities of these sciences and the current economic situation.*

Some achievements of the NPBNS in 2022:

Around 100 scientific publications, more than 200 presentations at national and international scientific meetings, near to 40 awards and recognitions and working on the management of more than 10 patents.

Some achievements of the NPBNS in 2022:

- New knowledge, algorithms, methods, models, languages and technologies were developed.
- Strategies and methods of synthesis and analysis were reported, as well as measurements and precise evaluations of physical-chemical and biological properties of natural and social objects of interest, all aimed at obtaining new knowledge and technological innovation.

Some achievements of the NPBNS in 2022:

- Basic research was carried out for providing new knowledge in life sciences that contribute to guaranteeing the sustainable development of our society.
- Strategic alliances were established to facilitate interaction, cooperation and transfer of knowledge between specialists and institutions linked to Basic and Natural Sciences to create a base of human and material resources prepared to face the country's challenges.

Some figures of the NPBNS in 2022:

Total budget: \$ 14 714 344.57 CUP (~ \$ 613 098 USD)

Total number of projects: 35

Total number of active projects: 33

BASIC SCIENCES TODAY IN CUBA

Taking into account the current trends of scientific production and doctoral training in Cuba, it is necessary to undertake innovative paths to stop setbacks and achieve progress.

New actions and initiatives of all kinds should be conceived as complements or developments of the current processes.

What ChatGPT says?

By asking an AI bot on how to do it, based on available information and research at the web, it answered a curious and very human recommendation:

“The sustainable development of basic sciences in Cuba requires a comprehensive action plan that addresses funding, collaboration, policy, education, international collaboration, infrastructure, and entrepreneurship. By implementing these strategies, Cuba can develop a strong foundation in basic science that can contribute to the country's economic growth and social development.”



FELIX VARELA BASIC SCIENCE
RESEARCH COUNCIL

FELIX VARELA BASIC SCIENCE RESEARCH COUNCIL

A Promising Expectation



The **Felix Varela Basic Science Research Council** is being structured as a natural development of NPBNS.

It is expected to be a non-profit foundation to promote the creation of new multidisciplinary basic scientific knowledge, the training of young PhD's and the advancement of science from Cuba for the benefit of society and its sustainable well-being.

Felix Varela

Félix Varela (Havana, 1788 – St. Augustin, FL, 1853) was a Cuban priest, teacher, writer, philosopher, and politician who played an important role in intellectual, political, and religious life in Cuba in the first half of the 19th century. He is currently considered the father of Cuban scientific thinking.



"Scientific wealth is like material wealth, which, if it is not spread, presents the pitiful picture of a rich country inhabited by poor people."

"El Mensajero Semanal", Vol. I, New York, Saturday, June 13, 1829. Taken from "Varela Morales, F., Obras. 1 ed.; Editorial Cultura Popular y Ediciones Imagen Contemporánea: La Habana, 1997; Vol. 2."

SPECIFIC OBJECTIVES

Jason Allen's A.I.-generated work, "Théâtre D'opéra Spatial", 2022



SPECIFIC OBJECTIVES



- Sponsoring original research in Basic and Natural Sciences.
- Support for the training of young scientists through related doctoral programs.
- Sponsorship of other postgraduate training activities.
- Promotion of scientific communication.
- Expedited, efficient and controlled management of the required human and material resources required for such purposes.

“Artificial intelligence will dominate the world ... but something is already flying higher” by Renzo Biolchi

ON HOW COULD BE THE ENGAGEMENT



ACTIONS



The Council's forms of action can be as varied as was convenient for its purposes of promoting basic sciences and the training of scientists.

International collaboration and involvement could get all possible shapes.



SOME FORMS OF ACTION

- Management of funding for the National Program of Basic and Natural Sciences and other pertinent projects*;
- Creation and sponsorship of ubiquitous laboratories for specific purposes*;
- Creation or reformulation and eventual affiliation of scientific centers elsewhere*;
- Management of all kinds of resources necessary to carry out high-level scientific research both in Cuba and abroad*;

* Suitable for international collaboration



SOME FORMS OF ACTION

- Recruitment of national and international scientists for specific purposes*;
- Doctoral Scholarship Grants*;
- Funding for the development of basic sciences in existing infrastructures*;
- Cooperation for scientific communication tasks*;
- All other actions feasible to promote science and education in Natural and Basic Sciences*.

* Suitable for international collaboration

POSSIBLE SOURCES OF FUNDING

Seamus: "Money tree in the style of Monet"



POSSIBLE SOURCES OF FUNDING



The initial budget of the Council must be the one dedicated by the Cuban government to the National Program of Basic and Natural Sciences as of 2024.

POSSIBLE SOURCES OF FUNDING



It can also access other sources of financing with or without a specific purpose as a non-profit foundation from, among others:

- intellectual property management,
- joint cooperation actions with appropriate national and international organizations and
- donations and purposed funding.

PROMOTING ENTITIES



IYBSSD2022

International Year
of Basic Sciences
for Sustainable Development

Resucitar el hierro en oro...



“... Pero don Quijote, acompañado de su intrépido corazón, saltó sobre Rocinante, y, abrazando su rodela, terció su lanzón y dijo: Sancho amigo, has de saber que yo nací, por querer del cielo, en esta nuestra edad de **hierro**, para **resucitar** en ella la de **oro**, o la **dorada**, como suele llamarse...”



(Parte I, Capítulo XX)