

It is most often after long and in-depth research on issues that can be very theoretical, and with many failures on the road, that the scientific revolutions that drive technological transformations are born.

Moreover, curiosity-driven fundamental science is a model for sustainable development. Throughout history, scientific curiosity has driven each generation to add to the pool of knowledge built up by previous generations, and from which subsequent generations will draw the inspiration they need to solve the problems they will face.

The reverse process is under way for our planet's natural resources, on which we are drawing without concerning ourselves about their increasing scarcity.



We need science to achieve the Sustainable Development Goals: its results, their transformation into innovations, but also its methods of cooperation.

- The worldwide fight against the COVID-19 pandemic is rooted in basic sciences: decoding the viral genome, modelling the dynamic of the epidemic or testing treatments and vaccines wouldn't have been possible without a long term alliance between biology, chemistry, physics and mathematics.
- The WEB was invented at CERN from the need for global collaboration for experiments in fundamental physics and it has been developed thanks to powerful algorithms.
- Our mobile phones would not exist without material sciences that enabled the invention and miniaturization of the transistor, and mathematics that are the basis of all software.
- HIV/AIDS treatments significantly extend the lives of people infected through an understanding of how retroviruses work.
- Artificial intelligence, which is based on theories and methods developed in mathematics, statistical physics and signal processing, will have an influence on all aspects of our societies.
- Renewable energy production and storage depend on advances in physics, chemistry and material sciences.
- Pollution reduction as well as sustainable and healthy nutrition all depend on green chemistry.
- The fight against non-communicable diseases, such as diabetes or obesity, will depend on knowledge from fundamental biology.

Why do we need an International Year?

The International Year of Basic Sciences for Sustainable Development will mobilize stakeholders at all levels for a better integration of scientific results into public decision-making processes and for the inclusive development of basic sciences.

This International Year will insist that we, policy makers and citizens, shouldn't be only concerned with applied sciences, which are supposed to provide quick solutions, but also with basic sciences, in the long term.

Six main themes will be highlighted:

- Women in the basic sciences
- Basic sciences as sources of international dialogue and peace
- Basic sciences is a global public good
- The role of basic sciences in innovation and economic development
- Basic sciences education and human development
- Basic sciences to meet global challenges

Four axis for action:

- **Enhancing inclusive participation in science:** the participation of all individuals who wish to, whatever their origin, their social or geographical position, or their gender, is essential for the progress of basic sciences.
- **Strengthening education and scientific training:** science education from an early age gives appetite for research and encourages people to pursue scientific careers. Moreover, the scientific methods and curiosity contributes to the education of responsible and autonomous citizens.
- **Financing basic science:** in many regions of the world, countries have committed to devote up to 1% or even 3% of their GDP to financing R&D programmes. Indeed, some examples show that such expenses allow the development of the economy and of the international influence.
- **Generalize open access:** open science is primary to the development of scientific research and innovation, to meet the Sustainable Development Goals all over the world. Dissemination of basic science results and all the documents necessary for their production is of major importance.

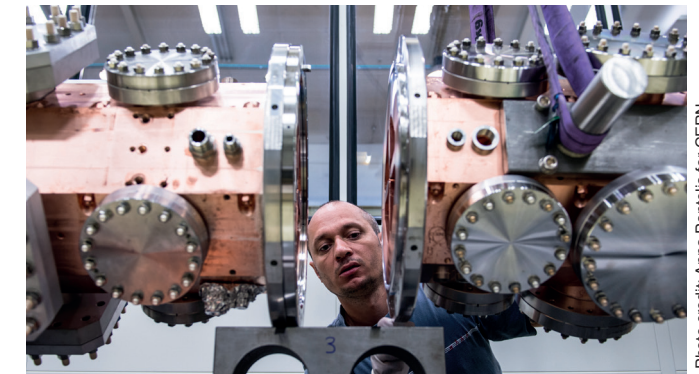


Photo credit: Anna Pantella for CERN

Who is involved Organizing committee

Chair:

- Michel Spiro, President of IUPAP, President of the CERN Foundation.

Co-chairs:

- Lily Rodriguez, Secretary of the Centre for the Conservation, Research and Management of Natural Areas – Blue Cordillera (CIMA) and former member of IUBS Executive Committee.
- Trần Thanh Vân, founder of the Rencontres du Vietnam.

Steering committee: over 20 International Scientific Unions and Research organizations.

International High Patronage Committee: already 25 Nobel prize and Fields Medal laureates.

International Advisory Committee: over 40 science academies and scientific networks.

