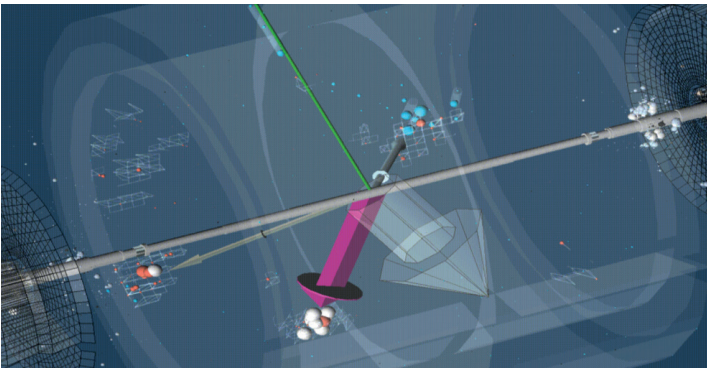
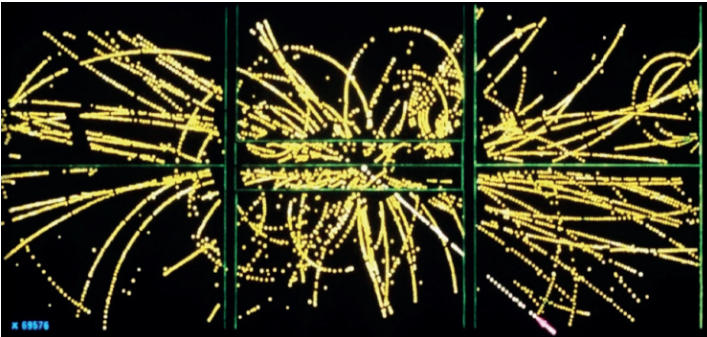
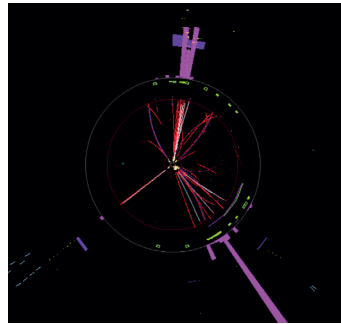
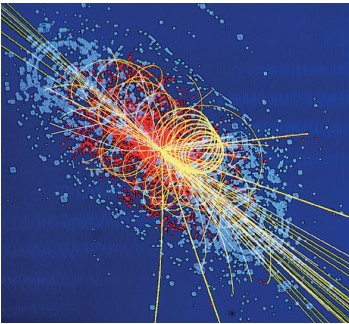


SPRACE: Enhancing and supporting the participation of Brazilian researchers in high –energy physics experiments



Contributions to reinforce the science development

SPRACE inspired and led the GridUNESP project that put in place the first “Campus Grid” in Latin America. GridUNESP is composed of eight data processing and storage centers distributed throughout the State of São Paulo. They are interconnected through the Grid architecture. With this project, SPRACE allowed to make viable a central computing structure dedicated to research, which today has around 250 researchers and is currently used by students and researchers at UNESP, as well as external researchers.

SPRACE also has a strong commitment with the teaching and promotion activities. It has elaborated high-energy physics courses and the teaching material developed is available in the website for those who wish to use the content. With the promotion project “Elementary Structure of the Matter: a poster in each school”, SPRACE was able to promote the basic understanding about this topic in almost every secondary school of Brazil, including Amazonia.

The annual event Master Class is one of the other promoting activities that SPRACE carries on with secondary-level students. This virtual event gathers students from all over the world during a whole day to carry out mini-research activities on identification of particles, simulating the real work of a researcher in the area. The event has been very successful since it allows the interaction and collaboration of the students thanks to the video-conferences where they can exchange about the experience, share the data and results obtained and share the knowledge acquired.

SPRACE also managed and created an open-source simulation game for PC called SPRACE GAME. This game allows the user to simulate the manipulation of particles and the construction of atoms and elements. SPRACE GAME was launched in Brazil and was translated into English with the support and leadership of CERN, allowing this teaching material to be known all over the world.

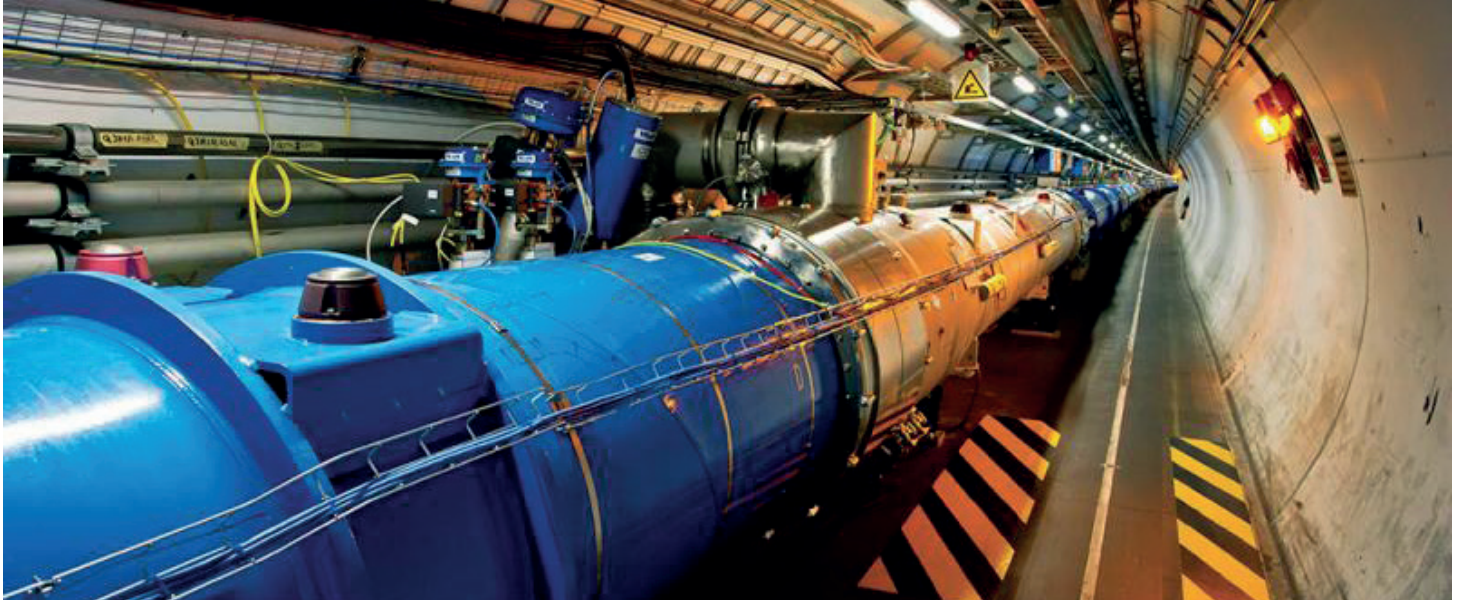


PHOTO: CERN

Collaborative work in an international network

The conformation of SPRACE is in itself an example of collaboration between peers since this center was born by the initiative of three most important state universities of São Paulo: UNESP, UNICAMP and UFABC. So from the beginning, SPRACE has been building networks of collaboration at the national and international level, making possible its integration into research groups with high level of scientific recognition, such as CERN. Among the contact network and the collaborative activities of SPRACE, we can mention:

- SPRACE started its operations in March 2004, in association with the Distributed Organization for Scientific Analysis and Research (DOSAR)
- It got merged with SAMGrid, the distributed processing system from the experiment DZero
- In 2005, SPRACE became part of the Open Science Grid (OSG)
- SPRACE is associated to Exotica group, which is dedicated to the research of new physics beyond the standard model
- SPRACE is also associated to the Heavy Ion group, which is dedicated to exploring the properties of the quantum chromodynamics (QCD) theory
- SPRACE is currently participating in the program IPCC (Intel Parallel Computing Centers) together with INTEL and Fermilab for software development in the high-energy area.

About SPRACE

The São Paulo Research And Analysis Center (SPRACE) was established in 2003 thanks to the financial support of Foundation for the Support to Research of the State of São Paulo (Fundação de Amparo à Pesquisa do Estado de São Paulo – FAPESP). The objective of the center is to offer the necessary means to researchers on high-energy physics from the State of São Paulo in order to participate in experiments of this kind.

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Thanks to the Open Science Grid, SPRACE has participated in Monte Carlo generation and data reprocessing of the DZero experiment and has become a Tier2 of the hierarchical computer structure that is being used for the CMS experiment. SPRACE brings together the DZero members into collaboration at the Fermi National Accelerator Laboratory (Fermilab) and in the Compact Muon Solenoid (CMS) at the European Organization for Nuclear Research (CERN). Also, the center offers more than ten Teraflops of processing capacity and contributes to the processing, storage and analysis of the data generated by these experiments.