

**NEWSLETTER 03** *Italian* National Institute for Nuclear Physics

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## SCIENCE BOREXINO: THE FIRST REAL-TIME IMAGE OF THE SUN

The Borexino experiment at the INFN's Gran Sasso Laboratory has measured for the first time the flux of neutrinos produced in the thermonuclear fusion of two hydrogen atoms to form a deuterium atom, the primary reaction in the chain of reactions that fuels our star. Once produced, neutrinos arrive on Earth

after just 8 minutes and this allowed Borexino to measure the energy of our star in real-time at the moment of its production. This is the first time that this has happened, because until now solar energy was studied through the detection of photons which take a full 100 thousand years to reach us. By comparing these two measurements it has been demonstrated that the energy of our star has not changed from then until now.



## EVENTS CERN: 60 YEARS OF EUROPEAN RESEARCH

September 29 has marked the 60<sup>th</sup> anniversary of the largest particle physics laboratory in the world. The event boasted the participation of heads of state and representatives of the governments of the member countries and institutions that collaborate with CERN. Italy has been represented by the Minister of Edu-

cation, Universities and Research (MIUR) Stefania Giannini; Ambassador Maurizio Enrico Serra, Italy's Permanent Representative at the International Organizations of Geneva, and the President of the INFN Fernando Ferroni. Sixty years have passed since September 29, 1954, when twelve countries, including Italy, officially founded CERN, the European Organization for Nuclear Research. In these 60 years, CERN has come a long way. It has been a crucible for knowledge, but also for technological innovation with a strong impact on society. That is not all; with its current 21 member states, it is an example of how science can offer fertile ground for dialogue and collaboration.