

» FOCUS



IPPOG, A SCIENTIFIC COLLABORATION FOR PARTICLE PHYSICS OUTREACH

A rare mix of scientists, science communicators, and educators from the most prominent laboratories and institutions engaged in particle physics around the world, working in science education and public outreach for particle physics: this is IPPOG, the International Particle Physics Outreach Group. IPPOG's goal is to contribute to global efforts that strengthen cultural awareness, improve understanding and support of particle physics and related sciences, and develop the next generation of researchers, by raising the standard of public outreach and science education. Current members come from the 22 member states of CERN, which include the Italian INFN, and other countries active in particle physics, like Australia, Ireland, Slovenia, South Africa, and the USA.

Established 20 years ago, IPPOG first evolved from a European to a global network and now, on 19 December 2016, has become a formal scientific collaboration based on a memorandum of understanding, signed by INFN in January. A total of 13 countries have joined the collaboration and there are several candidate members expected to join soon. IPPOG's members include representatives of several national-level science networks, helping to establish it as a global network of laboratories, institutions, organizations, and individuals, all passionate about particle physics.

IPPOG is best known for its International Masterclass (IMC) programme, which emerged in the mid-1990s from national outreach efforts in the days of LEP (a former CERN collider). Since 2005, the programme has offered high-school students the opportunity to become physicists for a day by performing tailor-made analyses on real particle physics data from the LHC (the current accelerator at CERN) experiments, and is currently expanding scope to detectors, such as LIGO-VIRGO, Ice Cube, and the Auger Observatory. Lectures from active scientists give students insight to topics and methods of research of the fundamental components of matter and their forces, enabling the students to perform measurements on real data. At the end of each day, like in an international research collaboration, the participants join a video conference (moderated from CERN or Fermilab)

» FOCUS

for discussion and combination of their results.

In terms of numbers, this year's edition of the IMC included more than 200 institutions in 52 countries and around 13,000 students took part. INFN joined the IMC from the beginning in 2005. In Italy, every year, around 3000 students participate in the IMC, organized by all INFN's divisions and the Frascati Laboratory.

Reaching out to high-school students and their teachers to convey the methods and tools used in fundamental science is a strong investment in the future. While only a fraction of young students will become scientists, and fewer still will become particle physicists, all will become ambassadors for the scientific method and evidence-based decision-making. In this spirit, future IPPOG efforts are underway to add global cosmic ray measurement and neutrino programmes to its core activities. ■

Links:

<http://ippog.org>

<http://physicsmasterclasses.org/>

<http://masterclass.infn.it/>