

International Particle Physics Outreach Group (IPPOG) Report



- **Brief history: started as a network called the European Particle Physics Outreach Group (EPPOG) in 1997.**
 - Sweden represented in the network through Fysikersamfundet.
 - Tightly connected to CERN in the beginning, changed name to IPPOG a couple of years ago to reach out worldwide.
 - Has expanded to cover much more than accelerator physics, in particular strong activities in cosmic ray (astroparticle) physics outreach.
- **Transformed from a network into a formal collaboration two years ago, with membership fees.**
 - Members can be countries, laboratories or experiments.
 - Fees are low (1 kEuro/year), **medium (3k)** or large (5k), depending on the GDP and the size of the community.
 - This allows to go from ideas to action, to have the means to produce material and pay for critical organisational support.
- **Meet twice a year for 2.5 day long, intense, meetings.**
 - AT GSI-FAIR in May 2019, and at CERN in November 2019.

	Signing Organisation	Country/Lab/Experiment	Date signed
1	NIKHEF	Netherlands	22 Sep 2016
2	DESY for KET	Germany	23 Sep 2016
3	Physics Department of University of Oslo	Norway	21 Oct 2016
4	LIP	Portugal	1 Nov 2016
5	The Section for Elementary Particle and Astroparticle Physics of the Swedish Physical Society through the Swedish LHC Consortium	Sweden	1 Nov 2016
6	CHIPP	Switzerland	4 Nov 2016
7	Ministry of Education, Science, Research and Sport	Slovak Republic	15 Nov 2016
8	Institute of Atomic Physics	Romania	17 Nov 2016
9	Helsinki Institute of Physics	Finland	29 Nov 2016
10	FWO + F.R.S.-FNRS	Belgium	30 Nov 2016
11	CERN	CERN	19 Dec 2016
12	INFN	Italy	21 Dec 2016
13	CNRS/IN2P3	France	23 Dec 2016
14	The Henryk Niewodniczański Institute of Nuclear Physics Polish Academy of Sciences	Poland	29 Dec 2016
15	CoEPP	Australia	14 Feb 2017
16	The University of Notre Dame on behalf of QuarkNet	USA	14 Mar 2017



7.3. - 16.4.2019
 + satellite dates
 + Spanish VCs
 (to accomodate all needs)

54 countries involved



Coord.: QuarkNet / TU Dresden

- 51 institutes (48)
- 54 LHC Masterclasses (50)
 - 22 ATLAS (19)
 - 32 CMS (31)
 - (Incl. TRIUMF program)
- 12 MINERvA Masterclasses

- 188 institutes (177)
- 266 LHC Masterclasses (257)
 - 30 ATLAS W (35)
 - 101 ATLAS Z (104)
 - 64 CMS (58)
 - 41 LHCb (39)
 - 27 ALICE SP (18)
 - 3 ALICE R_AA (3)

- Also the World Wide Data Day (W2D2), Int. Day of Women and Girls in Science, Particle Therapy Masterclass (new).

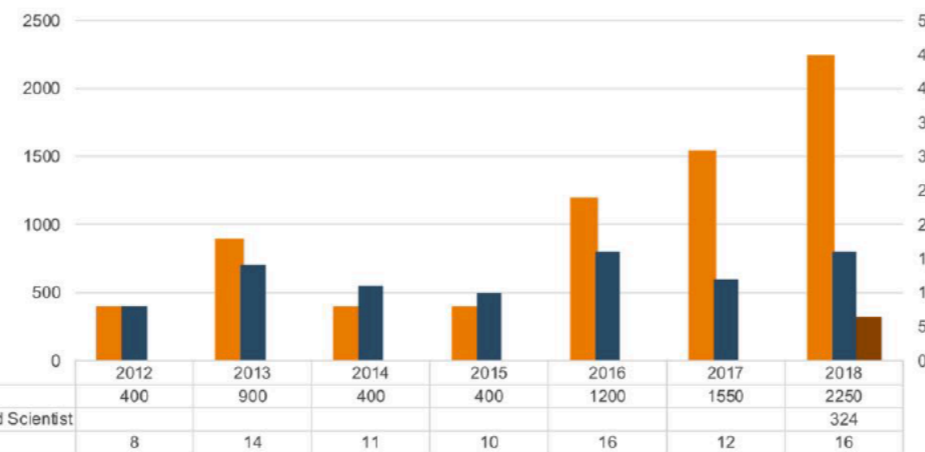
There are several projects around the world that address young people and teachers, to give them the opportunity to explore cosmic particles. e.g. **International Cosmic Day, International Muon Week, etc.**

IPPOG brings these initiatives together for global reach.

<http://globalcosmics.org>

Participants ICD

Growing Event



DESY | International Cosmic Day and Cosmic@Web | Carolin Schwerdt, 22. Mai 2019

Seite 3

Helping Develop America's Technological Workforce

QuarkNet International Muon Week

Operated detectors world-wide during April 1-5; shared data and results.

Theme: Average Speed of Muons

Goal was more international participation -> large EEE effort

Record 54 sites participated; 19 uploaded results (only 12 sites in 2018)

Mark Adams, Fermilab, IPPOG May 23, 2019

- IPPOG is really branching out to other fields of physics besides accelerator physics.

International Particle Physics Outreach Group

Girls, do Physics!

Inspiring and empowering girls around the world to engage in physics or related STEM subjects.

Girls, do Physics! is an Instagram campaign organised by the International Particle Physics Outreach Group (IPPOG) to inspire girls to become interested in and study physics and related STEM subjects and break the stereotype that physics is more suitable for boys.

Girls, Do Physics!

- New initiative this spring, get girls to upload pictures of them doing science experiments on social media (Instagram/Twitter).
 - Was very successful, competition was extended in time.

WINNERS & QUOTES

BIG IMPACT for PILOT PROJECT!



“Physics is the only way we have to understand how the Universe works, is there anything more impressive than that?”

“This is the best thing I have done in my life.”

I'm very proud of all the scientists of the past and especially of the women among them, whose work has opened up the way for us, young girls, to take part in science.”

“The physics of today will be the technology of tomorrow.”



“It doesn't matter that I am still little, I am going to study science and help others.”

- Quotes from some of the winning teams (and the special prize winner for youngest participant!).

First Breakout Session

Exhibits & Exhibitions

- SB Lecture Hall (SB1.1.201)
- Conveners: **Catia Peduto, Steven Goldfarb**

Explaining Particle Physics Hot Topics to a Lay Audience

- Theory Seminar Room (S3.3.170a)
- Conveners: **Dirk Ryckbosch, Thomas Naumann**

Second Breakout Session

Outreach of Applications for Society (with hands on CAEN PET activity)

- Side Room of SB Lecture Hall
- Conveners: **Barbora Gulejova, Yiota Foka**

Expanding Masterclasses to New Countries

- SB Lecture Hall (SB1.1.201)
- Conveners: **Ken Cecire, Uta Bilow**

- **Collaboration board discussions:**

Points for Discussion during Saturday Collaboration Board

- Expression of Interest by Georgia (Vote)
- USA Membership Status Update (Vote)
- Associate Member Status for National Organizations (Vote)
 - DESY Associate Membership (Vote)
 - GSI Associate Membership (Vote)
- Discussion of Extension of Candidacy: Israel, Bulgaria, South Africa (Votes)
- Financial Report 2018 (Endorsement)
- Next IPPOG Meeting Venue (Vote)
- Search Committee for Chairs (Endorsement)

Future Challenges in Particle Physics Education and Outreach

IPPOG Collaboration

IPPOG, the International Particle Physics Outreach Group, is a collaboration comprising 27 signing member-organizations (countries, laboratories, experiments) whose goal is to maximize the impact of education and outreach efforts related to particle physics.

IPPOG members from:

Australia, Austria, Belgium, Brazil, Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden, Switzerland, USA; and CERN, ALICE, ATLAS, Belle II, LHCb

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Abstract

This document is meant to serve as input from the IPPOG Collaboration for the open call for the European Particle Physics Strategy Update 2020. It emphasises the strategic relevance of concerted, global outreach activities in particle physics today and beyond when envisaging new large-scale projects.

- 1 Introduction
- 2 Outreach and Communication
- 3 Large-Scale Global Science
- 4 Outreach Today in Particle Physics
- 5 IPPOG as a Strategic Pillar for Particle Physics
- 6 Future challenges
- 7 Conclusions

In total, 9 pages with a clear message.

- Prepared a 9-page paper as input to the European Strategy discussions, highlighting the importance of Outreach and Communication for society and for our field.



Wider impact on society (1)

n) *Outreach and communication* in particle physics should receive adequate funding and be recognised as a central component of the scientific activity. *EPPCN and IPPOG* should both report regularly to the Council.

EPPCN (European Particle Physics Communications Network) brings together professional communication officers from CERN Member States to coordinate and strengthen outreach and communications activities, and develop common strategies in support of particle physics. Over past years, increasing efforts to use CERN's public visibility to support outreach and communications activities in the Member States, with initiatives targeting the needs of the various countries.

IPPOG (International Particle Physics Outreach Group) brings together physicists, educators and communication specialists active in education and outreach for particle physics. Flagship programme is International Particle Physics Masterclasses. Since last ESPP: formal collaboration established (23 countries, 5 experiments and CERN). Annual budget: 70 kCHF + in-kind support.

EPPCN and IPPOG report to Council in September each year

→ See talk by Perrine Royole-Degieux

Note: importance of recognizing people devoting fraction of their time to education and outreach
Dedicated WG established by ESG to review existing structures and level of support, as well as synergies with other fields

- One of Fabiola's introduction slides at Granada highlighted outreach.

- EPPCN (European Particle Physics Communication Network) was established by CERN in 2005 following the European Strategy.
 - Strengthen communication and dissemination of information to member states.
 - Coverage for the start of LHC, and the discovery of Higgs boson.
- Gets press releases ahead of time. Most of the discussions are on *how* to communicate, rather than discussions on the physics content.
 - The press releases then needs to get disseminated to the journalists.
 - In the statures, says it should be professional communicators, but for some small countries doubles with the IPPOG delegates.
 - Very important that some delegates happen to be physicists (even when they are not supposed to be!).
- Task is to take information/press releases, translate to native language and *put a national spin on it*. “These Swedish groups contributed to ...”
- We now have a new Swedish representative in EPPCN, Kristina Careborg at VR, who started in this role in the beginning of the year.

Backup