

Panel discussion: IPPOG and gravitational waves

Gravitational waves are back in the spotlight, thanks to the recent Physics Nobel Prize. Panelists are asked to consider the role of IPPOG in the outreach of gravitational waves physics

IPPOG Meeting, November 2-4, 2017

- Panel duration: 1 hour
- **Gravitational waves** (GW)
 - Discoveries
 - Multi-messenger astronomy with the global 3-detector network
 - LIGO-Virgo data taking to restart during **Fall 2018**
- International **Particle Physics** (PP) **Outreach** Group
 - (In)direct **connections** between PP and GW
 - Outreach **synergies / common effort**
 - **Contact(s)** with LIGO & Virgo
- See « **Physics for everyone** » slides from yesterday afternoon
- GW-based **Masterclass exercise**

Particle Physics & Gravitational Waves: Connections

- **Barry Barish** – co-recipient of the Physics Nobel Prize 2017
- **Virgo was built by particle physics institutes**
 - CNRS & INFN, Nikhef later
- **Basic research** aiming at **understanding the Universe**
 - General audience makes no difference
- **Fundamental interactions**
 - More than **particles**
- **The two infinities**
 - Micro / Mega
 - Humanus ('looking down') / Anthropos ('looking up')
- **Big science**
 - Large collaborations
 - Theory & experiment interplay
- **ATLAS & CMS / LIGO & Virgo**
- **Seeing nothing can be a valuable information!**

Particle Physics & Gravitational Waves: Differences

- Quantum field theories / General relativity
- Communities
 - Connections (or lack of) are very country-dependent
- Discovery announcement strategy: science or media/public first?
 - CERN: H boson in 2012
 - LIGO-Virgo: GW150914 (02/2016) and GW170817 (10/2017)
 - ◆ Press conferences more effective to target non-scientific audiences
- Budgets
 - ESA vs. CERN: 5-6/1 ratio
- Sky and associated pretty pictures make communication & outreach simpler
 - Astronomers more effective to reach out students, public & politicians

Seen from IPPOG

- Parallel with the « Cosmic rays becoming global » topic
- Connection more obvious with dark matter
 - Particle(s)
 - We are IPPOG
- Common interests
- Gravitational wave search well-suited for an IMC-like Masterclasse exercise
- IPPOG and LIGO-Virgo should discuss together
 - Exchange both ways
 - Learn from each other
 - Advices & best practices – no spare manpower on either side
- Current contact: NA
 - By chance: French national representative + Virgo member
 - Connections should go beyond me and get stronger with time
- Concrete start: at next Spring IPPOG meeting!?
 - Will try to invite LIGO colleagues as well