

# Gravitational Wave International Committee (WG.11)

## report to IUPAP

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The Gravitational Wave International Committee (GWIC) was formed in 1997 to facilitate international collaboration and cooperation in the construction, operation and use of the major gravitational wave detection facilities world-wide. From 1999 until 2011, GWIC was recognized as a subpanel of PaNAGIC (IUPAP WG.4). In 2011, GWIC was accepted by IUPAP as a separate Working Group (WG.11).

GWIC meets annually adjacent to an appropriate conference. In July 2017, GWIC met in Pasadena California, in conjunction with the twelfth Amaldi Meeting. Other recent meetings have been held in New York City (2016), Gwangju (2015), Banff (2014), Warsaw (2013), Rome (2012), Cardiff (2011), and Hannover (2010). Other business during the year is conducted via email or other electronic communication. The next meeting is scheduled for July 2018, in conjunction with the LISA International Symposium to be held in Chicago.

GWIC maintains a website at <https://gwic.ligo.org/> which contains an up-to-date listing of members, its by-laws, announcements of its activities, and links to other items of interest to the gravitational wave community.

### **GWIC Membership**

The membership of GWIC represents all of the world's active gravitational wave projects, as well as other relevant communities, covering gravitational wave frequencies from nanohertz to kilohertz. Each project has either one or two members on GWIC depending on size. GWIC also includes representatives from ISGRG (IUPAP AC2), International Astronomical Union (IAU) Commission on Gravitational Wave Astrophysics, and from the astrophysics/theoretical relativity community, to help facilitate communication with those bodies. One member of GWIC in 2018 (Sheila Rowan) was also a member of ApPIC (WG.10), ensuring close communications.

The GWIC Chair is elected by its membership at its annual meeting in odd years. At our most recent meeting, GWIC chose Sheila Rowan (Glasgow) once again as its Chair, serving until 2019. This year David Shoemaker (MIT) serves as the Executive Secretary.

Each member project in GWIC determines its representatives on GWIC. No changes have been made since the last Report to IUPAP; the membership is given at the end of this report.

## **GWIC Activities in August 2017-March 2018**

GWIC convenes the biennial Edoardo Amaldi Conference on Gravitational Waves, sponsored by IUPAP as a "class B" Conference. The Amaldi meeting is considered by many in the gravitational wave community to be their most important international gathering. The members of GWIC serve as the Scientific Organizing Committee for the Amaldi meetings. Planning for the 2019 Amaldi meeting is underway; it will be held with the ISGRG-sponsored International Conference on General Relativity in Valencia.

GWIC's activities in this last half-year have been focused on third-generation ground-based observatories ('3G'), via a subcommittee formed in late 2016. The charge for this subcommittee is to engage the community broadly to help formulate the best possible science case and to lay out the best path toward a robust international project. This committee has created subcommittees in several crucial areas: The Science Case, Governance, R&D, and Coordination.

The Science Case subcommittee has formed an informal consortium of some 200 scientists interested in exploring and documenting the science that can be done uniquely with 3G detectors and in conjunction with electromagnetic observations. They are planning a meeting of this group in October 2018, but meanwhile are using existing meetings and tele-meetings to move forward.

The Governance subcommittee has explored existing models for large instruments and observatories in a range of fields of science, and looked at the suitability and difficulties of these models for a globally-unified network of 3G observatories. The R&D coordination subcommittee has organized sessions at R&D meetings in the field, and found leaders to gather the status and plans in various domains. The Coordination Subcommittee has been in touch with and made presentations to funding agencies and roadmapping organizations in both Europe and the US.

The objective is to prepare materials which will inform funding agencies and panels considering the future of the gravitational-wave field and more generally astrophysics and astronomy, and to help the community envision, evaluate, and plan for its future.

GWIC is also preparing to update its Roadmap for the field, which will be informed by the 3G studies described above.

**Membership of GWIC (as of March 2018)**

*Chair:* Sheila Rowan

*ACIGA:* Matthew Bailes

*Einstein Telescope:* Michele Punturo

*European Pulsar Timing Array (EPTA):* Michael Kramer

*GEO 600:* Karsten Danzmann, Sheila Rowan

*IndIGO:* Bala Iyer, Somak Raychaudhury

*KAGRA:* Takaaki Kajita, Yoshio Saito

*LIGO, including the LSC:* David Shoemaker, David Reitze

*LISA:* Neil Cornish, Bernard Schutz, Ira Thorpe, Stefano Vitale

*NANOGrav:* Maura McLaughlin

*Parkes Pulsar Timing Array (PPTA):* George Hobbs

*Spherical Acoustic Detectors:* Odylio D. Aguiar

*VIRGO:* Jo van den Brand, Fulvio Ricci

*Theory Community:* Clifford Will

*AC2 Representative:* Beverly Berger

*IAU Commission D1 Representative:* Marica Branchesi

*Executive Secretary:* David Shoemaker