Gravitational Wave International Committee (WG.11) report to IUPAP

17 September 2020

prepared by David Shoemaker [*MIT,* Executive Secretary],
Dave Reitze [*Caltech*, Chair]

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. The next meeting will be on 28-29 September, and will be a telemeeting. Other recent meetings have been held in Valencia (2019), Chicago (2018), Pasadena (2017), 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 2021 in Melbourne, Australia, in conjunction with the 14th Edoardo Amaldi Conference on Gravitational Waves.

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 serving on GWIC depending on project 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 current member of GWIC (Sheila Rowan) was also a member of ApPIC (WG.10), ensuring close communications.

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The GWIC Chair is elected by its membership at its annual meeting in odd years. At our 2019 meeting, GWIC chose Dave Reitze (Caltech) as its Chair, serving until 2021. This year David Shoemaker (MIT) serves as the Executive Secretary.

Each member project in GWIC determines its representatives on GWIC. Any changes in membership after our upcoming September 2020 meeting will be reported in the next report to IUPAP.

GWIC Activities September 2019 – September 2020

GWIC helped in the organization of the 2020 LISA Symposium. This had been planned for Glasgow University, but in consideration of COVID, it was held as a telemeeting 1-3 September 2020. Both technology and process were adapted to the format of a telemeeting, with a combination of pre-recorded and live presentations. The response of the community was very positive, and GWIC intends to use 'lessons learned' from that experience in supporting future telemeetings and hybrid meetings in the GWIC domain.

GWIC has been organizing the next 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 Scientific Organizing Committee for the Amaldi meeting is composed of several members of GWIC complemented by a diverse selection of scientists in our domain and other disciplines interested in our domain. The plenary speakers are currently being identified, and a particular focus of the SOC is a diverse set of speakers in all measures. Backup plans will be developed to allow the meeting to be held as a telemeeting if required.

GWIC's activities in this last half-year have continued to be 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, Detector R&D, Computing, and Community Engagement.

The subcommittee, with broad engagement by the community, has produced a series of reports, and has also written a number of more specialized documents for use in roadmaps in Europe and the US, and for proposals for continuing efforts.

The full reports were shared with a set of program officers and others in funding agencies internationally, and detailed comments received. A round of editing of the full report is now complete, and the final reports will be approved at the upcoming September 2020 GWIC meeting.

GWIC is nearing completion of a Roadmap summary for the field, as informed by the 3G studies described above. It will appear in Nature Physics Reports in the coming months.

The next steps for the 3G effort are now in discussion and will continue to be a focus for GWIC in the coming year, as the 3G detectors move toward engagement with funding agencies, and the need for a strong advocacy program ramps up.

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Membership of GWIC (as of September 2020)

Chair: Dave Reitze, California Institute of Technology and University of Florida, (GWIC, 2007–, Chair 2019–)

Cosmic Explorer: Matt Evans, MIT, 2019–

Einstein Telescope|: Michele Punturo, INFN-Perugia, 2009–

European Pulsar Timing Array (EPTA): Michael Kramer, Max-Planck-Institut für Radioastronomie and Jodrell Bank Centre for Astrophysics (University of Manchester), 2009–

GEO 600: Karsten Danzmann, Albert-Einstein-Institut fur Gravitationsphysik and University of Hannover, 1997–; Sheila Rowan, University of Glasgow, 2009–

IndIGO: Bala Iyer, International Centre for Theoretical Sciences (ICTS) of the Tata Institute of Fundamental Research (TIFR), 2011–; Somak Raychaudhury, Inter-University Centre for Astronomy and Astrophysics, 2017–

KAGRA: Yoshio Saito, KEK, 2013–; Takaaki Kajita, Institute for Cosmic Ray Research, University of Tokyo, 2011–

LIGO: Dave Reitze, California Institute of Technology and University of Florida, 2007–; Patrick Brady, University of Wisconsin Milwaukee, 2019–

LISA Community: Kelly Holly-Bockelmann, Vanderbilt University, 2018–; Bernard Schutz, Albert-Einstein-Institut für Gravitationsphysik, 2001–; Ira Thorpe, Goddard Space Flight Center, 2016–; Stefano Vitale, University of Trento, 2001–

NANOGrav: Scott Ransom, NRAO, 2019–

OzGrav: PPTA: Matthew Bailes, Swinburne University, 2017–; Audioband: David McClelland, Australian National University, 2000–

Virgo: Giovanni Losurdo, University of Pisa, 2020-; Jo van den Brand, Dutch National Institute for Subatomic Physics (Nikhef) and VU University in Amsterdam, 2017–

Theory Community: Luis Lehner, Perimeter Institute, 2018–

IUPAP Affiliate Commission AC2 (International Commission on General Relativity and Gravitation): Beverly Berger, 2013–

IAU Commission D1 Representative: Marica Branchesi, Gran Sasso Science Institute, 2017–

Executive Secretary: David Shoemaker, Massachusetts Institute of Technology, 2016–