



DAWN WORKSHOP

Session B: Network and MMA

PANEL

Strategies to enhance the network

Potential for a coordinated R&D and the role of GWAC



PANEL MEMBERS

- ❑ D Reitze - LIGO lab
- ❑ G Gonzales - LSC
- ❑ G Losurdo (replacing F Ricci, excused) - Virgo
- ❑ S Miyoki - KAGRA
- ❑ S Mitra - LIGO India
- ❑ P Marronetti - GWAC, NSF



PANEL FOCUS

2G network evolution in the next ~10 years

- ❑ Turning single detectors plans into strategies for network enhancements
- ❑ Challenges along the path



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From the Silver Spring concluding document (LIGO-P150047):

- In all detection scenarios, an international network of gravitational wave observatories is required for source localization. Network coordination of downtimes and upgrades may be very important: improving the weakest detector in the network can benefit sky localization; improving the strongest detector in the network can benefit parameter estimation. The relative value of these will become clearer when GW signals have been detected, potentially allowing us to set better priorities for operations and upgrade schedules.



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1. To improve GW detector network coordination, we recommend multi-month exchange [visitor programs](#); [international meetings](#) regarding near- and long-term planning; and [joint instrument science and engineering working groups](#) developing common technical solutions. To establish a model for such collaboration, we advocate forming a joint working group involving experts from each of the gravitational wave detectors, to target initially just one near-term instrument refinement, and then beginning a joint engineering effort among the major GW detectors. These programs may require moderate investments at the level of collaborative multiple investigator funding.
2. We propose assembling a [joint design program](#) for GW detector improvements, distributing costs for development and production. This will be very important, since implementing detector upgrades may need significant resources, on the level of funding for mid-scale innovation projects. The current collaborations and other interested research groups should establish milestones for planning future detectors, and subsequently oversee activities to ensure that the milestones are achieved.
3. We recommend a [closer link among the global funding agencies](#) to coordinate medium- and long-term planning, looking for synergy between the agency capabilities to most effectively stimulate the international field of gravitational wave physics and astrophysics.



1.

- ❑ Visitors program exist, mostly focused on commissioning/ operation. Could we extend them on purpose for R&D and detector enhancement?
- ❑ International meetings on near- and long-term planning are now frequent (agree?)
- ❑ Joint WG: still a good idea? If so, could we make progress?



2.

- Joint design program: this is not the case due to the different stage of progress of LIGO/Virgo/Kagra. In this context, **is collaboration/coordination is possible on some R&D topics?**
 - This could become the playground for a future collaboration on 3G



3.

- The funding agencies have created the GWAC. We'll hear from P Marronetti about the role which this body could play. What do we want to ask GWAC to do for us?