

LSC and LISA Community EPO Mission

From the LSC EPO White Paper 2018-19

1.2 EPO Mission and Goals

A core mission of the LSC is to harness the excitement and enthusiasm generated by gravitational wave research to inspire and educate students and the general public in astronomy and fundamental science; the LSC believes that the opportunity to discover the beauty of the cosmos should not be limited by age, culture or abode.

The LSC EPO working group, established in 2008, aims to lead the LSC efforts to carry out this mission. By combining and synthesising a range of ideas and approaches across participating institutions, and promoting collaboration and sharing of best practise, the LSC EPO working group seeks to create outreach programs which are far more effective than they would be if LSC member institutions worked independently.

The EPO group's program of activities and priorities is shaped by the following general goals:

- To communicate LSC results in an accessible way to the world - to other physicists, students, and the general public.
- To develop educational resources that will inspire and train the next generation of scientists and build overall scientific literacy.
- To advocate for future development and growth in our field, in partnership with LSC/Lab leadership and the broader GW and EM astronomy communities.

LSC and LISA Community EPO Mission

- < 50% of LSC groups with an EPO MoU
- Highly active programs at **LHO**, **LLO** and **Virgo**
- Vast range of EPO activities across the globe:

Formal Education

- Formal Education Unit inspired by LIGO
- Teacher professional development
- Partnerships with existing classroom networks
- GW Masterclasses for high school students

Informal Education & Public Outreach

- **Visual and web media**; audio and multimedia
- **Social media**
- Computer and board games, apps, software tools
- **Citizen Science projects**
- **Exhibits**
- **Printed materials**
- Connections to art, theater and dance
- Multilingual outreach
- Outreach to children
- Public lectures

Higher Education

- In person faculty professional development
- On-line teacher professional development
- Resources for college faculty and students
- Talks and lectures
- Summer research programs

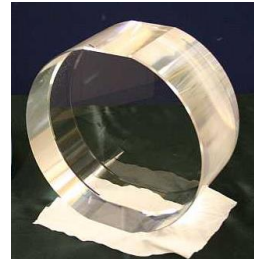
Professional Outreach

- **Outreach to other scientists**
- Outreach to the broader academic community, including funding agencies and/or foundations
- Outreach to government and legislative officials

Recently formed: LISA Advocacy and Outreach Group – many common themes

LIGO Exhibits

Recent focus on greater **flexibility** and **scalability** – creating easily portable exhibit resources to be **used / shared** across collaboration



GRAVITATIONAL WAVE ASTRONOMY

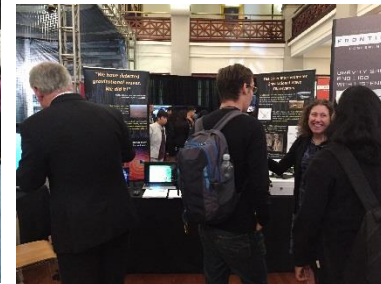
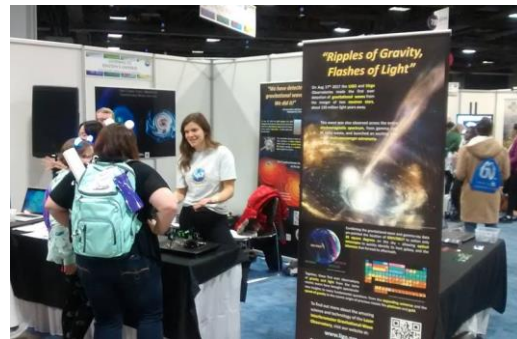
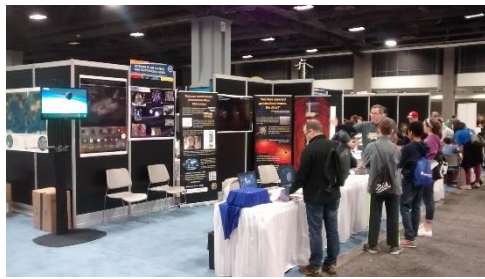
Opening a new window on the Universe

A new era of observational astronomy is about to dawn – with the first **direct** detections of gravitational waves.

The **ISA** (International Gravitational Wave Consortium) is using the precision timing of pulsars to build a distant-scale gravitational wave observatory, sensitive to the cosmological background of merging supermassive black hole binaries.

The **LIGO** (Laser Interferometer Gravitational-Wave Observatory) Scientific Collaboration and other collaborations will soon begin science operations with a global network of advanced ground-based laser interferometers, increasing 1000-fold the number of astrophysical candidates for gravitational wave signals from compact stellar-mass objects.

Visit our display to explore the huge astrophysical potential of this new window on the cosmos!



LIGO Open Science Center (LOSC)

Main public portal
for LIGO data:

<https://losc.ligo.org/>

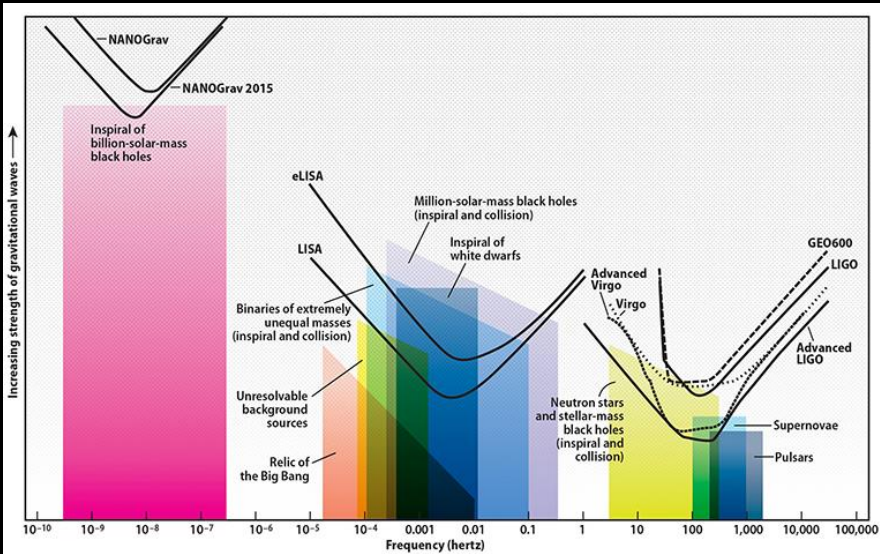
key products:

- h(t) data segments near detected events.
- past (S5, S6) and future data releases for science/observing runs.
- some data from publication figures.
- documentation and software tools for using data.
- python-based tutorials: play with data to extract detected signals.
- ~100 users/day



The screenshot shows the LIGO Open Science Center (LOSC) website. At the top, there is a blue header with the LIGO logo and the text "LIGO Open Science Center". Below the header, there is a navigation menu on the left with links: "Getting Started", "Tutorials", "Data", "Events", "Bulk Data", "Timelines", "My Sources", "Software", and "GPS ↔ UTC". On the right side, there is a "Welcome to the LIGO Open Science Center" message. Below this, there is a section titled "Discoveries from the LIGO detectors!" with a sub-section "released 2017 June 1:" and a specific event mentioned: "Event of January 4, 2017: GW170104: total mass 50".

Open F2F workshop in March 2018



LISA decadal science paper workathon: July 8, 2018, Chicago, IL

The NASA LISA Study Team is sponsoring a workathon on July 8th in Chicago (this is right before the LISA Symposium, also in Chicago). We plan to dig into our white paper drafts and strategize for the Decadal survey, so it's an important time for LISA-enthusiasts.

Please sign up here if you're planning to attend (and even if you're not sure, still sign up so we plan enough coffee!). This is an open session, so free to distribute and enlist your friends – we will find work for all!

Please submit your responses by June 8th.

Thanks, y'all!
Kelly Holley-Bockelmann