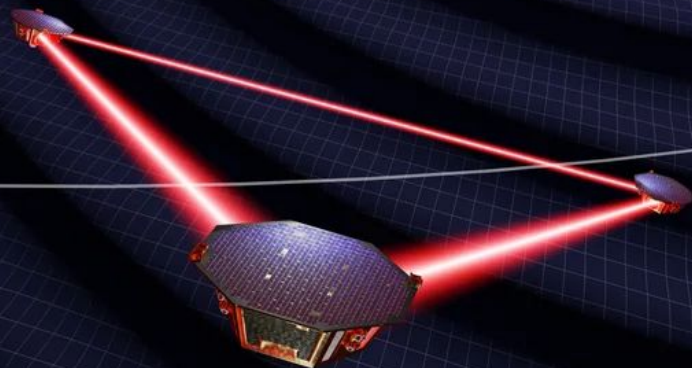


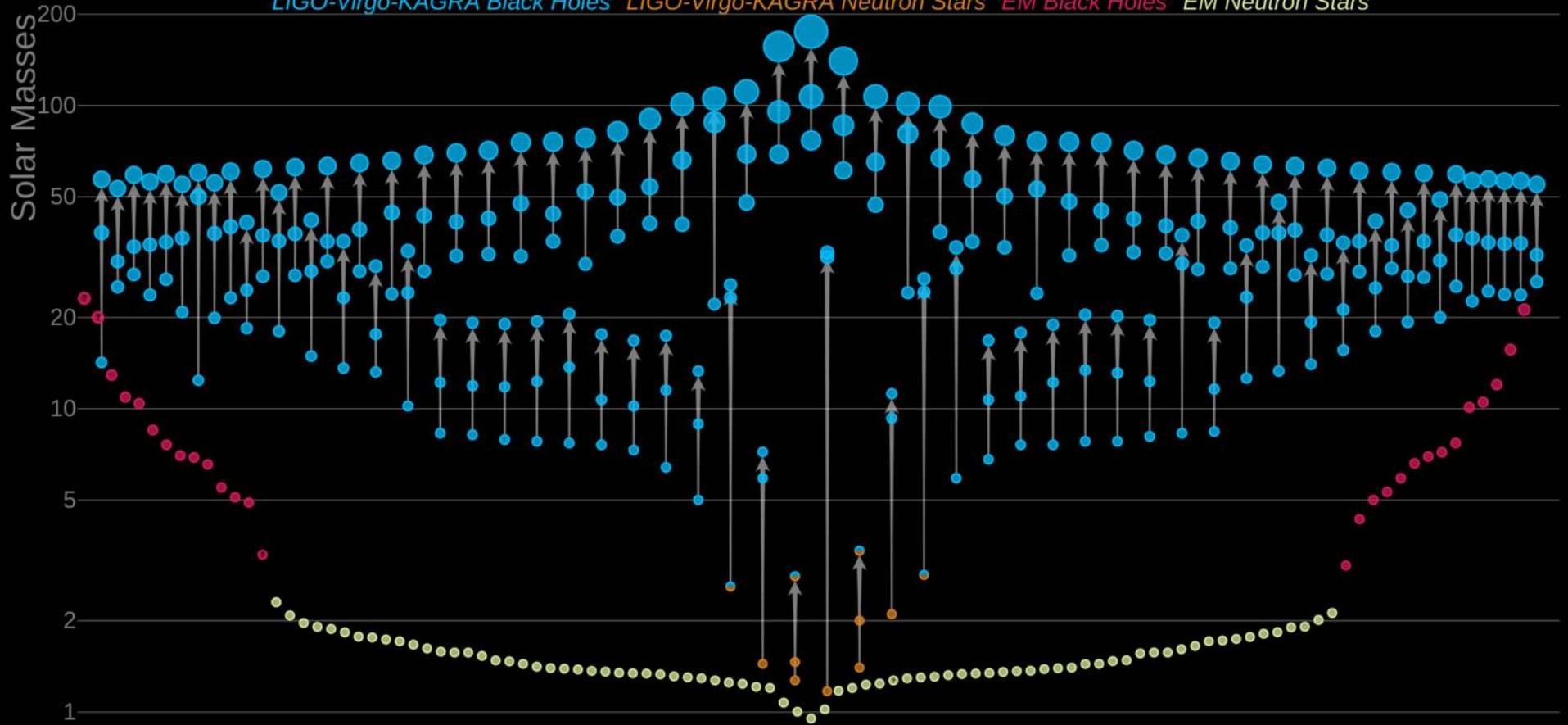
Welcome to LISA Canada 2022!

We'll get started at 08:00 Pacific



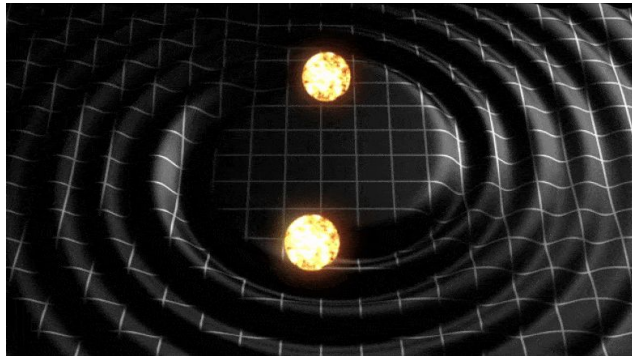
A new era of discovery

LIGO-Virgo-KAGRA Black Holes *LIGO-Virgo-KAGRA Neutron Stars* *EM Black Holes* *EM Neutron Stars*



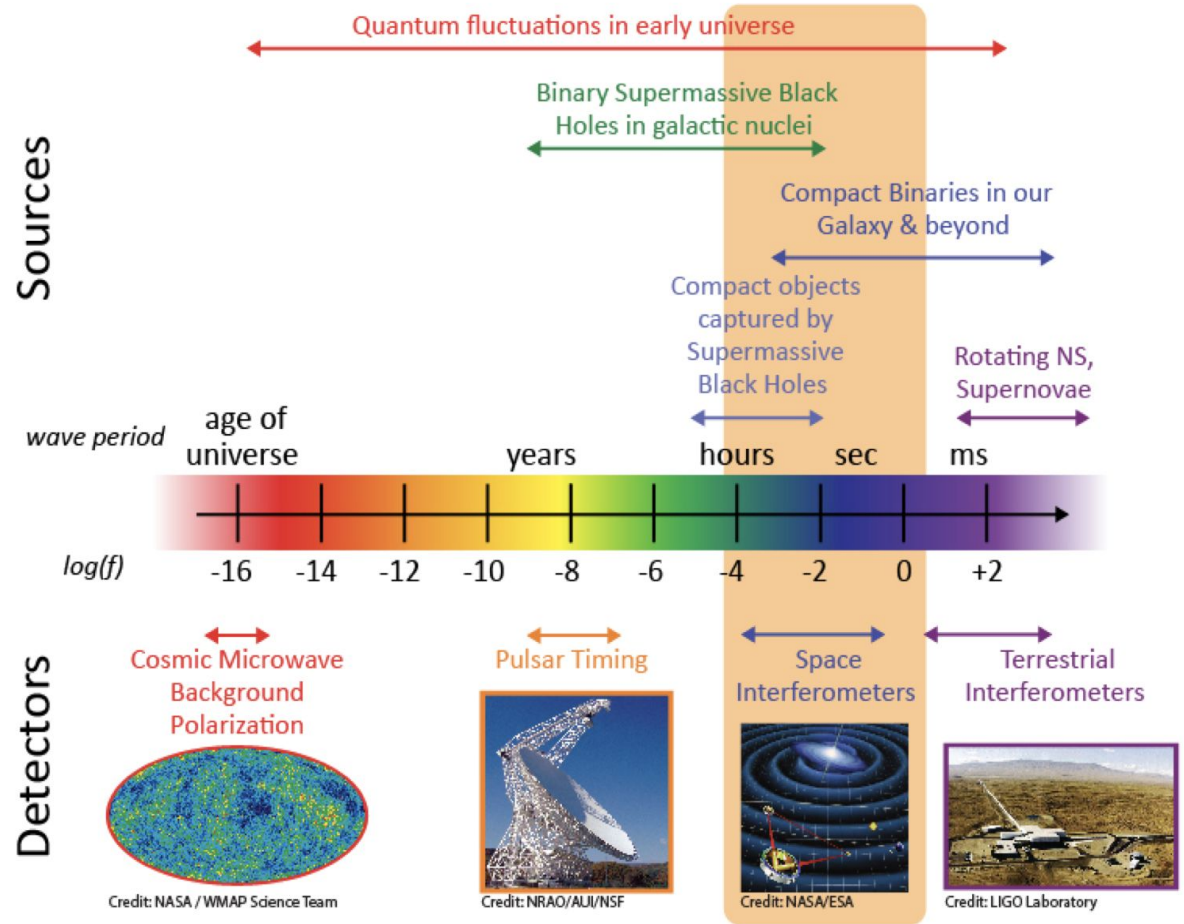
Gravitational waves:

- Ripples in spacetime
- Weakly interacting (not blocked/distorted by matter; galaxies, dust)
- Direct probe of the dynamics of asymmetric systems
- **Signal strength scales with $1/r$!**



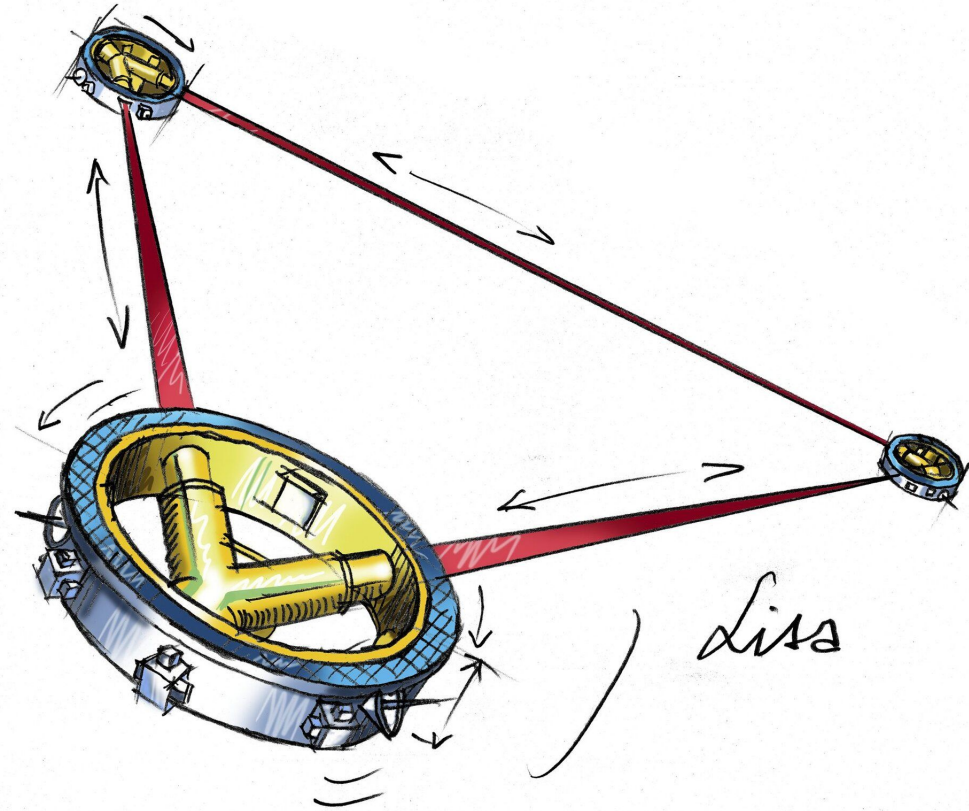
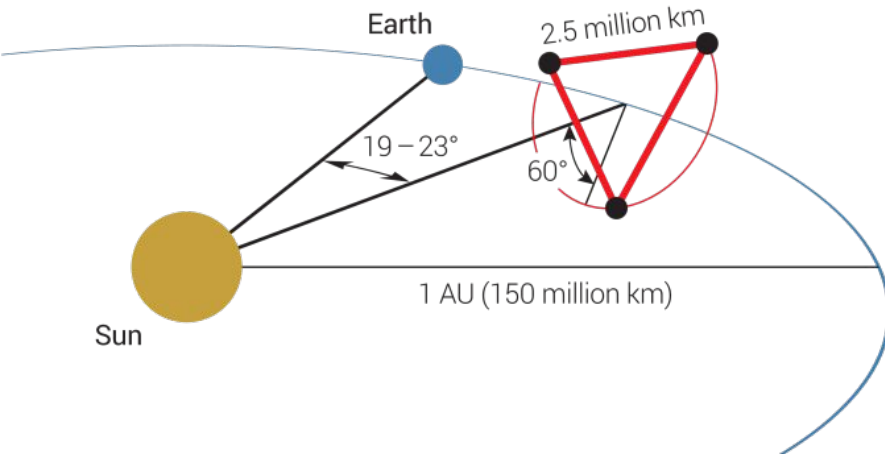
OzGrav

The Gravitational Wave Spectrum



The LISA mission:

- 2.5 million km arms
- GW observation: 100 mHz – 1 Hz
 - Signals in-band for months-years; allows precise sky localization
- 4 year nominal mission (10 year extended mission)
- [LISA L3 mission proposal](#)



LISA discovery space:

Binary Star Evolution

- Census of compact binaries, especially WD+WD
- *Millions* of close compact binaries

Mapping of old stellar population in Milky Way

Accretion Physics

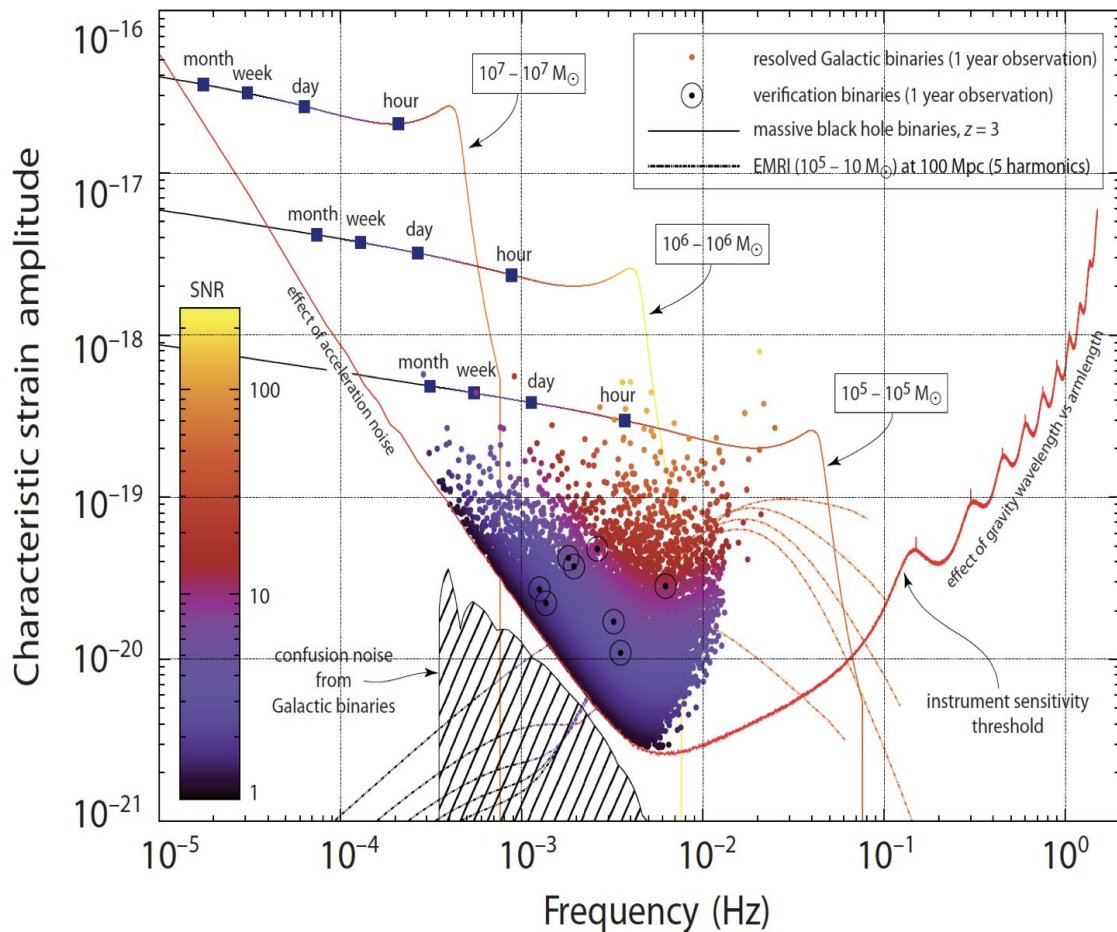
Cosmology with GW distances

Galaxy evolution through SMBH mergers

Tests of GR

- Stellar remnants orbiting SMBHs: probing deep gravitational wells for thousands of cycles

GWs are unaffected by dust!



Imagine what you could do with:

- Component masses — 1%
- Distances — 3% or better
- Spins — 1-10%
- Spin directions — 10 degrees
- Sky localization — few arcmin-10 deg²
- Eccentricity — 1%

*A message from Kelly
Holley-Bockelmann to the LISA
Canada 2021 workshop on behalf
of the LISA Consortium leadership:*

Oh, Canada: LISA is happening! It's time to think about how to get the most science out of LISA data. We need to build capacity in the brand new field of gravitational wave astronomy, and we'd love to work with you.

LISA Canada 2021 workshop: an introduction to LISA

You can find recordings on YouTube, also linked on LISA Canada Slack:

LISA Science Overview (Kelly Holley-Bockelmann): <https://www.youtube.com/watch?v=Vrli-6Tpx3Y>

LISA Detector Overview (William Weber): <https://www.youtube.com/watch?v=fb0vpAwde6g>

LISA Astrophysics Working Group (Shane Larson): <https://www.youtube.com/watch?v=DVaPbXUmC2Q>

LISA Data Challenge W. Group (Nikolaos Karnesis): <https://www.youtube.com/watch?v=BaBkQ8snODs>

LISA Parallel Session A (Observations/Instrumentation): <https://www.youtube.com/watch?v=PlrbfloGF44>

LISA Parallel Session B (Theory): <https://www.youtube.com/watch?v=TPsowHlayhk>

LISA Consortium Overview (Nelson Christensen): https://www.youtube.com/watch?v=90gQ_3mUfLI

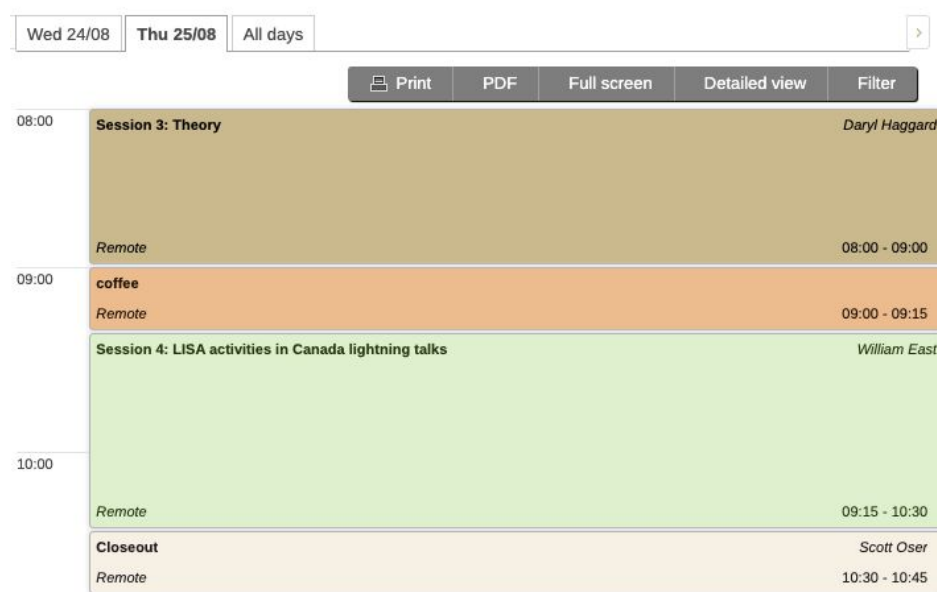
LISA Canada Workshop Discussion Summary and Closeout: <https://youtu.be/i-zsUtCKch4>

You can find slides on the LISA Canada 2021 workshop website, under 'Contributions': <https://meetings.triumf.ca/event/220/contributions/>

LISA Canada 2022 workshop goals

- Explore synergies between LISA and other priorities in Canada's astronomy and particle astrophysics program.
- Learn more about current and potential Canadian contributions to LISA, including a proposed Canadian hardware contribution to LISA.
- Highlight current LISA-related efforts within Canada.

Schedule overview



Navigating Indico

- Overview
- Timetable**
- Confirmed Speakers
- Code of Conduct
- Contribution List
- My Conference
- ... My Contributions
- Registration

Timetable

Session 4 (LISA activities in Canada lightning talks)

Block

LISA activities in Canada lightning talks

🕒 09:15 - 10:30

📍 (Remote)

Session

Session 4

Contributions 8

Print PDF Full screen Detailed view Filter

Daryl Haggard

08:00 - 09:00

☰
View session details

09:00 - 09:15

Session 4: LISA activities in Canada lightning talks

William East

10:00

Remote

09:15 - 10:30

Closeout

Scott Oser

Remote

10:30 - 10:45

LISA Canada 2022 Code of Conduct

- All participants, including attendees and organizers will treat each other with respect and conduct themselves in a professional manner that is welcoming to all everyone and free from any form of discrimination, harassment, or retaliation.
- Discriminatory, harassing or bullying behaviour or action of any kind will not be tolerated, and will result in immediate removal from this meeting and ban from all future LISA and LISA-Canada activities and notification of appropriate authorities, if necessary. This includes but is not limited to any form of sexual harassment, intimidation, threatening behaviour, sustained disruption, use of offensive or demeaning language including inappropriate jokes, unwanted photography, screenshots or recording, making statements based on individual characteristics such as age, race, ethnicity, sexual orientation, gender identity, gender expression, marital status, nationality, political affiliation, ability status, educational background, or any other characteristic protected by law.
- If you believe that you have been subject to or have witnessed behavior that violates this code of conduct, please report it immediately to the organizers. (Saurya Das: saurya.das@uleth.ca, Daryl Haggard: daryl.haggard@mcgill.ca).

How to engage during the workshop

- **Please remain muted** unless you are a speaker or you are invited to speak (i.e. to voice a question) by the session chair.
- Speakers and attendees, we strongly encourage you to join **LISA Canada Slack**: *see the join link we circulated by email.*
 - To pose a question to the speaker, please type your question into the Zoom chat.
 - We have a pretty tight timetable; we intend to divert follow-up questions and discussions that run over time to Slack.
 - Slack gives us a more permanent forum to help us keep these discussions going after the workshop.
 - Questions or problems signing up? Please reach out to a workshop organizer.

Talk recordings

- Most (if not all) talks will be recorded and available to registered participants
- Please watch for info on where to find the recordings by email.
 - We will also post links to talk recordings on LISA Canada Slack

Other resources

You can find the slides for LISA presentations at the recent Canadian Space Exploration Workshop (CSEW) here: <https://drive.google.com/drive/u/0/folders/1p-5FUVTsrZtorwCUSdwEVt4Oekd6uVxZ>

Survey about Canadian interest in LISA

There are currently ongoing discussions on a Canadian hardware contribution to the ESA-led Laser Interferometer Space Antenna (LISA) gravitational-wave mission.

This contribution could be funded by the Canadian Space Agency, and would make Canada an official partner in the mission.

To aid in securing this funding, we are collecting names and institution information here from all interested Canada-based (astro)physicists interested in LISA, which we will include in a letter to the CSA to push for official Canadian partnership.

If by the end of the workshop you are interested in LISA, we encourage you to add your name!

<https://forms.gle/xrnPuChJLPVYVcui6>