

Title: Discussion Session

Date: Jun 11, 2018 04:30 PM

URL: <http://pirsa.org/18060049>

Abstract:

Questions on science case

General

- ❖ What is unique about high-frequency (above 1kHz) gravitational-wave observations?
- ❖ What is the relevant frequency range and the cost function for optimising detector sensitivity?

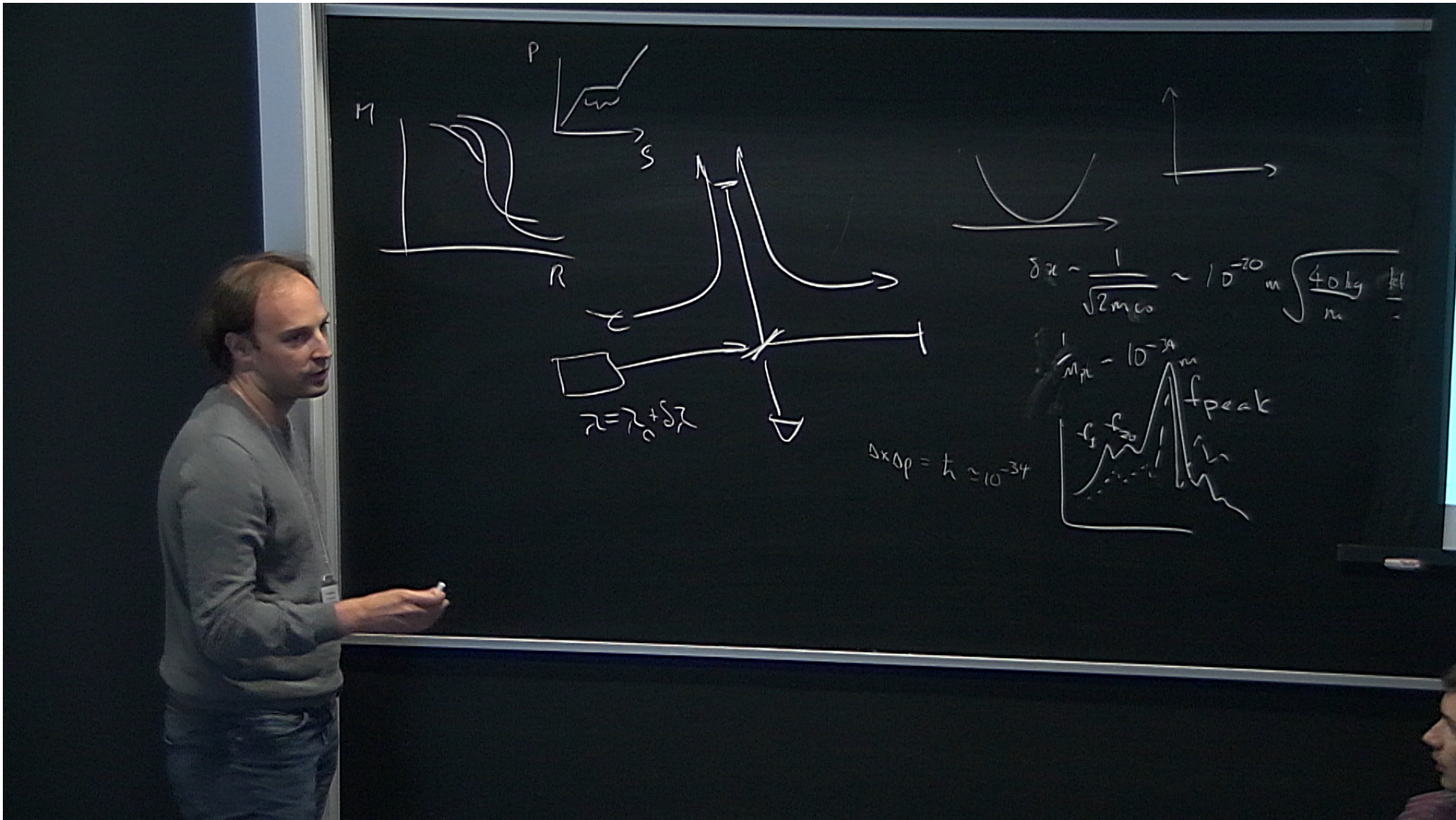
Neutron star physics

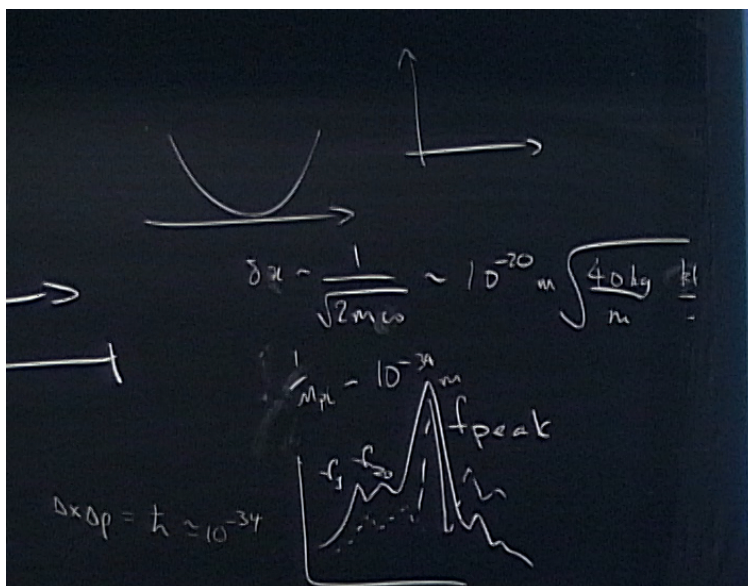
- ❖ How much can we learn about the EOS by detecting the post-merger spectrum of the merger remnant which is not already known from the nuclear and particle physics experiments?
- ❖ What mode(s) are more sensitive to the inner-core QCD physics?
- ❖ Can we isolate different effects, e.g. EOSs, finite temperature, magnetic field, and neutrino transport from the spectroscopic measurement of different modes of the merger remnant?
- ❖ Can we probe the explosion mechanism for core-collapse supernovae from kHz GWs?
- ❖ Can we determine the NS collapse time?

Black hole physics

- ❖ What are the fundamental aspects of BHs that we can test by detecting kHz GWs (no-hair theorem for low-mass BHs, ultralight axion field and superradiant cloud)?
- ❖ Is echo a smoking gun of the gravity being quantum? Are there any high-frequency signals?
- ❖ Do we offer a better insight into NS-BH systems with high-frequency GW observations?

Cosmology





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Cosmology

- ❖ Is it faster to measure the Hubble constant using optical counterparts or post-merger oscillations? Which rates are higher?
- ❖ Is it possible to have Hubble constant vary on a scale of 100 Mpc?
- ❖ What are the main application of kHz GW detection in cosmology?

Multi-messenger

- ❖ How can we coherently combine information from different observations?

Page 1 of 2 433 Words English (UK)



