Canadian Association
of Physicists

Association canadienne
des physiciens et physiciennes

Contribution ID: **3946**   Type: **Invited Speaker / Conférencier(ère) invité(e)**

(I) Challenges for multi-messenger astronomy with gravitational waves

Tuesday 20 June 2023 11:15 (30 minutes)

Advanced LIGO and Advanced Virgo have confidently detected dozens of gravitational wave (GW) signals from colliding black holes and neutron stars. As these GW detectors improve and more are added to the global network, the expected rate of detected events will increase (with the cube of the sensitive range) and our ability to constrain the properties, including likely sky location, will improve. I will discuss the challenges for extracting a high expected rate of GW signals from noisy gravitational wave detector data and an emerging suite of machine learning methods developed to better distinguish true astrophysical signals from non-stationary LIGO detector noise. I'll give my perspective on the implications for GW candidate alerts and future multi-messenger discoveries during the next international GW network observing run (expected to start in May 2023).

Keyword-1

Gravitational waves

Keyword-2

Multi-messenger

Keyword-3

LIGO-Virgo

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Session Classification: (PPD) T2-3 Discovering New Paths to Discovery: New Technologies and Methods to Uncover BSM Physics Symposium | Symposium sur les nouvelles technologies et méthodes pour découvrir la physique au delà du modèle standard (PPD)

Track Classification: Symposia Day (Tues. June 20) / Journée de symposiums (mardi, le 20 juin): Symposia Day (PPD - PPD) - Discovering New Paths to Discovery: New Technologies and Methods to Uncover BSM Physics | Découvrir de nouvelles voies vers la découverte : Nouvelles technologies et méthodes pour découvrir la physique au-delà du modèle standard