g2net WG3 online workshop on Machine Learning for Advanced Control Techniques

Report of Contributions

https://indico.ego-gw.it/e/172

Contribution ID: **1** Type: **not specified**

Welcome and Introduction

Monday, 22 March 2021 09:00 (15 minutes)

Presenters: CHINCARINI, Andrea; PETRE, Luigia (Åbo Akademi University)

Contribution ID: **2** Type: **not specified**

Controls in Advanced Virgo: from Lock Acquisition to Lock Losses

Monday, 22 March 2021 09:15 (45 minutes)

The recording of Diego's talk is here:
https://www.dropbox.com/s/y66q9qvmk0hf2c3/diego.mp4?dl=0

Relevant papers on the global controls of the Virgo experiment for the O2 and the O3 runs:
- Guided Lock in Advanced Virgo: https://epjplus.epj.org/articles/epjplus/abs/2018/02/13360_2018_Article_11920/13360_201

- Virgo Longitudinal Controls in Virgo for O2:
  https://www.sciencedirect.com/science/article/abs/pii/S0927650519301835
- Interferometer Sensing and Control in Virgo for O3:
  https://www.mdpi.com/2075-4434/8/4/85
- Etalon Control in Virgo during O3:
  https://www.mdpi.com/2075-4434/8/4/80

Presenter: BERSANETTI, Diego (INFN Genova)

Contribution ID: **3** Type: **not specified**

ROUND TABLE: ML for Cavity locking?

Monday, 22 March 2021 10:30 (1 hour)

Presenter: BERSANETTI, Diego (INFN Genova)

Contribution ID: **6** Type: **not specified**

Non stationary noise removal from LIGO data

Monday, 22 March 2021 16:00 (45 minutes)

The recording of Gabriele's presentation is here: https://www.dropbox.com/s/d7p9naimzseui5n/gabriele.mp4?dl=0

Presenter: VAJENTE, Gabriele (LIGO Laboratory Caltech)

Contribution ID: **7** Type: **not specified**

ROUND TABLE: ML for Noise removal?

Monday, 22 March 2021 17:00 (1 hour)

The recording of the roundtable discussion on ML for noise removal is here:
https://www.dropbox.com/s/794fhk3ozpax6ra/GabrieleRoundtable.mp4?dl=0

Presenter: VAJENTE, Gabriele (LIGO Laboratory Caltech)

Contribution ID: **8** Type: **not specified**

Squeezed light benches and optical alignment issues

Tuesday, 23 March 2021 09:00 (45 minutes)

The recording of Fiodor's presentation is here: https://www.dropbox.com/s/onk1zryn24s51us/fiodor.mp4?dl=0

Presenter: SORRENTINO, Fiodor

Contribution ID: **9** Type: **not specified**

ROUND TABLE: ML for Squeezed light benches?

Tuesday, 23 March 2021 10:15 (1 hour)

The recording of the roundtable on ML for squeezed light benches is here: https://www.dropbox.com/s/vzq1ngpy9zmkvm8/f

Presenter: SORRENTINO, Fiodor

Contribution ID: **12** Type: **not specified**

ROUND TABLE: ML for Glitch removal?

Tuesday, 23 March 2021 16:00 (1 hour)

Presenter: Prof. CAVAGLIA, Marco

Contribution ID: **13** Type: **not specified**

Glitch removal in ground-based gravitational-wave interferometric detectors

Tuesday, 23 March 2021 15:00 (45 minutes)

The recording of Marco's presentation and roundtable discussion is here:
https://www.dropbox.com/s/ude1e42h0nztpbl/MarcoTalkAndDiscussion.mp4?dl=0

Presenter: Prof. CAVAGLIA, Marco

Contribution ID: **14** Type: **not specified**

Closing remarks

Tuesday, 23 March 2021 17:00 (15 minutes)

The recording of this short session is here: https://www.dropbox.com/s/4mzjd27bscn17qm/SchoolAndClosing.mp4?dl=0

Presenters: CHINCARINI, Andrea; PETRE, Luigia (Åbo Akademi University)

Contribution ID: **15** Type: **not specified**

Surrogate Wiener filtering for the prediction and optimized cancellation of Newtonian noise at Virgo

Monday, 22 March 2021 13:00 (30 minutes)

The recording of Francesca's presentation is here:
https://www.dropbox.com/s/1zyw3uav046ozkd/francesca.mp4?dl=0

Advanced Virgo+ will enhance its sensitivity for the upcoming run, O4. This means that Newtonian noise might dominate in the low-frequency band. Fo this reason, it is critical working to reduce it as well. This will be achieved through active noise cancellation. It is of fundamental importance to understand how to optimally deploy an array of seismic sensors dedicated to active noise cancellation. This talk will present a new technique that allows us to use existent seismic data to construct a surrogate Wiener filter model bypassing all the difficulties related to the computational effort required by the task.

Presenter: BADARACCO, Francesca

Contribution ID: **16** Type: **not specified**

The experiment of the table top interferometer

Monday, 22 March 2021 13:30 (45 minutes)

The recording of Rob's presentation is here: https://www.dropbox.com/s/7t0pb0qfjrs6ytc/rob.mp4?dl=0

Presenter: WALET, Rob (Nikhef National Institute for Sub Atomic Physics)