

Data Quality and Event Validation in LIGO-Virgo-KAGRA Fourth Joint Observational Campaign

Thursday 18 July 2024 17:05 (20 minutes)

The success of gravitational wave astronomy hinges on precise data quality assessment and the meticulous validation of detected events. This presentation emphasizes the critical role of these processes, focusing on their importance within the ongoing O4 joint observational campaign of the LIGO, Virgo, and KAGRA detectors. We begin by introducing the concepts of detector sensitivity and data quality, with a particular emphasis on data quality issues. We then examine how these issues impact the search for astrophysical signals, affecting their confidence levels and the reliability of astrophysical parameter estimation results. We emphasize the importance of robust statistical tests in distinguishing genuine signals from noise. Additionally, we delve into the process of event validation, which involves scrutinizing candidate signals to support their astrophysical origin. Our discussion includes the presentation of the framework used in O4 to assess these properties effectively.

Alternate track

I read the instructions above

Yes

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