Contribution ID: **650** Contribution code: **contribution ID 650** Type: **Poster**

Identifying and diagnosing coherent associations and causalities between multi-channels of the gravitational wave detector

The gravitational-wave detector is a very complicated and sensitive collection of advanced instru-ments, which is influenced not only by the mutual interaction between mechanical/electronics systemsbut also by the surrounding environment. Thus, it is necessary to categorize and reduce noises frommany channels interconnected by such instruments and environment for achieving the detection ofgravitational waves because it enhances to increase of a signal-to-noise ratio and reduces false alarmsfrom coincident loud events. For this reason, it is of great importance to identify some coherent associ-ations between complicated channels. This study presents a way of identifying (non-) linear couplingsbetween interconnected channels by using some correlation coefficients, which are applied to practi-cal issues such as noises by hardware injection test,lightning strokes, and air compressor vibrationsgravitational-wave detector.

Significance

References

Speaker time zone

Compatible with Asia

Primary authors: Dr OH, John J. (NIMS (South Korea)); Mr JUNG, Piljong (NIMS); Dr KIM, Young-Min (UNIST); Dr OH, Sang Hoon (NIMS); Dr SON, Edwin J. (NIMS); Dr WASHIMI, Tatsuki (NAOJ, Japan); Dr YOKOZAWA, Takaaki (ICRR, Japan)

Presenter: Dr OH, John J. (NIMS (South Korea))

Session Classification: Posters: Orange

Track Classification: Track 2: Data Analysis - Algorithms and Tools