

V02a **Monitoring Non-Stationary Signals in an Interferometer**

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For the first detection of gravitational waves, long base-line interferometric detectors such as LIGO, VIRGO, GEO600, and TAMA300 are currently being operated. Gravitational wave signals are extracted from the observed data via some data analysis techniques. These data analysis techniques have been developed on the assumption that output signals of an interferometric detector in the absence of gravitational wave signals are Gaussian. We know, however, the output of a real interferometric detector contains non-stationary noises caused by various electrical sources and seismic disturbances, and these noises considerably reduce detection efficiency. In order to deal with these harmful influences, it is important to monitor the Gaussianity of the data by some on-line data analysis methods, and study the factor of non-stationary using the information of the analysis results.

Recently, we proposed an on-line data analysis method based on wavelet analysis which is favorable to deal with non-stationary data. This on-line data analysis method can not only monitor normality of data but also to extract non-stationary burst signals which make the data non-Gaussian with high accuracy. This method estimates such burst signals non-parametrically without prior information about their waveforms. By using the information of the estimated waveforms, we can better perform various kinds of analysis, for instance, classification of noise, which is effective for vetoing, analysis of the condition of a detector. In this presentation, we will report our recent result of this study in detail.