

Criteria for Detection of Gravitational Waves

Impulsive signal

- 1) Observation in all three LIGO interferometers
 - Same spectra (time series) to the limit of the statistics
 - 1:1, 1:2 amplitude ratio to the limit of the statistics
 - Reasonable time delay between LA and WA
 - Simultaneous in 2 and 4 km
- 2) Not observed in the environmental monitor channels
- 3) Not observed in the ancillary detector channels

Periodic signal (long integration)

- 1) Observation in all three LIGO interferometers
 - Same frequency, frequency and amplitude modulation indices
 - 1:1, 1:2 amplitude ratio
- 2) Not observed in the environmental monitor channels
- 3) Not observed in the ancillary detector channels

Stochastic background

- 1) Observed in 4km(WA) \otimes 4km(LA) and 2km(WA) \otimes 4km(WA) statistical
- 2) Not observed with same delay in 4km \otimes environmental channel
- 3) Not observed with same delay in 4km \otimes ancillary channel

Recommend agreement with all other detector groups, with corresponding sensitivity, to establish if observation has been made (preferably a joint announcement) and, if not, to jointly arrive at a reasonable hypothesis why not.