

Cockcroft Institute Colloquium

The potential for very high frequency gravitational wave science

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Wednesday 02nd June 2010, 15:00
Walton Rooms A & B, The Cockcroft Institute

Abstract

The science case for observing gravitational waves at frequencies in the millihertz to kilohertz range using LIGO, VIRGO, GEO600 or LISA is very strong. However, if gravitational astronomy follows the pattern of electromagnetic astronomy then new observational wavebands will open up in the future and allow the study of a wider range of objects and different regimes of physics. This talk discusses the possibility of gravitational wave observations at frequencies above one megahertz.

Predictions of gravitational wave emission from discrete sources at very high frequencies are not encouraging but more recent studies of cosmological signals from inflation and Kaluza-Klein modes from gravitational interactions in brane worlds are within the range of possible technologies. There is also the possibility of a laboratory "Hertz Experiment" This talk discusses current observational possibilities and the detector technology required to achieve detections or astrophysically useful upper limits at very high frequencies.