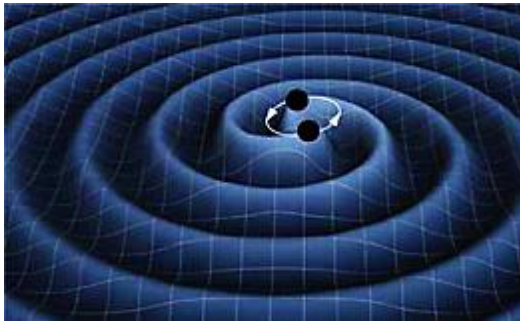
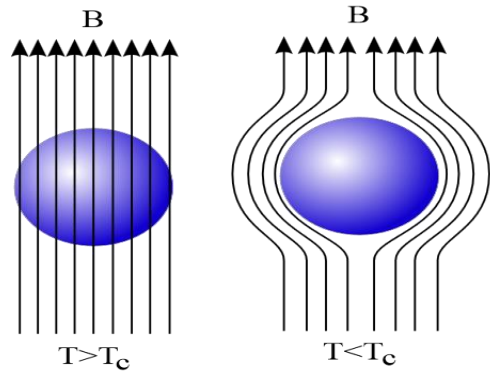


COLLOQUIUM



Gravitational Waves



Meissner effect in superconductors

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Generating and Detecting Gravitational Waves via Superconductors

Abstract

We begin with a brief discussion of the recent detection of gravitational waves by LIGO, as well as an introductory overview of the theory of General Relativity (GR). Using a linearized formulation of GR leads to a set of gauge-invariant gravitational Maxwell-like equations similar to electromagnetism. Applying this formulation to superconductors leads to a number of interesting gravitational phenomena, such as a gravitational Meissner-like effect, a gravitationally-induced dynamical Casimir effect in the phonon modes of a superconductor, and the possibility of reflecting gravitational waves from the surface of a superconductor. Lastly, we briefly describe how the parametric amplification of gravitational waves could lead to the possibility of generating and detecting gravitational waves in a laboratory setting.

3-4 p.m., Friday, Feb. 9th, McLane Hall 162. All are welcome!
Refreshments will be served at 3pm.