

Abstract for an Invited Paper  
for the APR09 Meeting of  
The American Physical Society

**Observing the Dark Side of the Universe with LISA**

THOMAS PRINCE, Caltech/JPL

LISA is a joint NASA/ESA space mission designed to measure gravitational waves in the band from 0.1 mHz to 0.1 Hz, a band that is richly populated by strong sources of gravitational waves. Signals will come from a wide range of sources: massive black holes merging in galaxies at all distances; stellar-mass compact objects captured by massive black holes; ultra-compact Galactic binaries; and possibly other sources including relics of the Big Bang. These sources convey detailed information addressing a wide range of physics and astrophysics: the history of galaxies and black holes in the universe; general relativity and the behavior of spacetime; precision measurements of luminosity distances; the physics of dense matter and stellar remnants; and possibly new physics associated with events in the very early universe. This talk will give an overview of the science goals of LISA and their potential impact on physics and astrophysics.