WEEK 19: The Big-Bang Observatory, a Follow-On to LISA; and GW Detection in the ELF Band Using the CMB Polarization

Lecture 35 Part 1 by William M. Folkner (JPL) [Big Bang Observatory]
Lecture 35 Part 2 by Mark Kamionkowski (Caltech) [GW Detection via CMB Polarization]

Reading Related to These Lectures:

Items in bold are recommended; others are supplementary.

**Big-Bang Observatory**

1. References on the background waves from white-dwarf binaries:


2. As yet there are no written documents on the Big Bang Observatory, but it will be discussed in a forthcoming report of the Roadmap Team of NASA’s Structure and Evolution of the Universe Subcommittee (SEUS), which is chaired by E. Sterl Phinney; see http://universe.gsfc.nasa.gov/roadmap.html.

**GW Detection via CMB Polarization**

3. For a pedagogical overview of the cosmic microwave background and its use to search for gravitational waves from the inflationary era of the universe, see M. Kamionkowski and A. Kosowsky, “The Cosmic Microwave Background and Particle Physics,” *Annual Reviews of Nuclear and Particle Science*, **49**, 77–123 (1999); also available at http://xxx.lanl.gov/abs/astro-ph/9904108; especially Section 4.2 “Temperature and Polarization”, and Section 4.4 “Polarization and Gravitational Waves”.

4. For a recent summary of prospects to detect inflationary gravitational waves via the CMB polarization, what we may learn from such detection, and the issues involved in achieving such detection, see


5. For the detailed theory underlying the use of the CMB polarization to detect primordial gravitational waves, see
