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LISA in the gravitational wave decade JOHN CONKLIN, Univ of Florida - Gainesville, NEIL CORNISH, Montana State University — With the expected direct detection of gravitational waves in the second half of this decade by Advanced LIGO and pulsar timing arrays, and with the launch of LISA Pathfinder in the summer of this year, this can arguably be called the decade of gravitational waves. Low frequency gravitational waves in the mHz range, which can only be observed from space, provide the richest science and complement high frequency observatories on the ground. A space-based observatory will improve our understanding of the formation and growth of massive black holes, create a census of compact binary systems in the Milky Way, test general relativity in extreme conditions, and enable searches for new physics. LISA, by far the most mature concept for detecting gravitational waves from space, has consistently ranked among the nation's top priority large science missions. In 2013, ESA selected the science theme "The Gravitational Universe" for its third large mission, L3, under the Cosmic Visions Program, with a planned launch date of 2034. Recently, NASA has decided to join with ESA on the L3 mission as a junior partner. Both agencies formed a committee to advise them on the scientific and technological approaches for a space based gravitational wave observatory. The leading mission design, Evolved LISA or eLISA, is a slightly de-scoped version of the earlier LISA design. This talk will describe activities of the Gravitational Wave Science Interest Group (GWSIG) under the Physics of the Cosmos Program Analysis Group (PhysPAG), focusing on LISA technology development in both the U.S. and Europe, including the LISA Pathfinder mission.

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