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Space-based gravitational wave observatories: Learning from the past, moving towards the future GUIDO MUELLER, University of Florida, NEIL CORNISH, Montana State University — This century began with a planned launch of the joint NASA/ESA Laser Interferometer Space Antenna in 2011. In a remarkable reversal of fate, 2011 instead saw the end of the NASA/ESA partnership and the termination of the LISA project. This was despite the very high scientific ranking of a mHz gravitational wave observatory in both the US and Europe, and significant progress in technology development, mostly spearhead by industrial studies in Europe. The first half of the current decade continues to be dominated by struggles of the international community to get a LISA-like mission back on track for a launch in the next decade. Following a second place in ESA's L1 selection, the science theme "The Gravitational Universe" has now been selected as the L3 mission in Europe which is scheduled to launch in 2034 assuming no further delays or re-plans for the L1-L2-L3 mission sequence. On a more optimistic note, the upcoming launch of the LISA Pathfinder in 2015 and the first direct detections of gravitational waves by Advanced LIGO and by pulsar timing later in this decade may provide the necessary impetus to accelerate the development of a space-based gravitational wave detector.

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