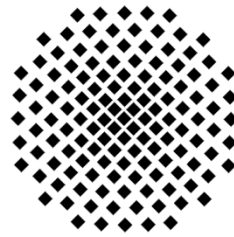


Stuttgarter Physikalisches Kolloquium

Fachbereich Physik, Universität Stuttgart
Max-Planck-Institut für Festkörperforschung
Max-Planck-Institut für Intelligente Systeme

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Dienstag, 13. Dezember 2016

17:30 Uhr

Hörsaal V 57.01

Universität Stuttgart, Pfaffenwaldring 57, 70569 Stuttgart-Vaihingen

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Advanced LIGO, GW150914, GW151226, and beyond

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Abstract

The LIGO collaboration completed the two Advanced LIGO detectors in early 2015, with an official dedication taking place at Hanford, Washington, in May 2015, transitioning the facilities from a construction project to observatories. By August 2015, the two detectors were working well, only a bit short of their designed sensitivity (as is normal at the early stage of such a complex project). The laboratories were scheduled to begin an observing run in late September 2015 and to continue this run into January 2016. In the early morning of 14 September 2015, while conducting engineering studies of the detectors, a strong transient signal was observed. Online analysis flagged this event 3 minutes after it was received. In February 2016, the collaboration announced that LIGO had observed gravitational waves from a binary black hole merger. A second merger, detected on 26 December 2015, was reported in May. The University of Florida built the input optics for both initial and Advanced LIGO and has been carrying out online and off-line data analysis for generic gravitational wave transients in the LIGO data stream. This, the detections, other results from the first observing run, the current status of LIGO, and the prospects for the future will be discussed.