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Abstract for an Invited Paper  
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**Ripples Across the Cosmos: The Detection of Gravitational Waves**

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2016 was a landmark year for physics and astronomy with the announcement of the first direct detection of gravitational waves by LIGO. The detection of the inspiral and coalescence of two black holes was exciting not only as confirmation of Einstein's prediction of the existence of gravitational waves 100 years earlier, but also as the first evidence for the existence of a coalescing binary black hole system and of black holes of several tens of solar masses. With subsequent announcements of further detections we are seeing the dawn of a new branch of astronomy. In this talk the speaker will discuss what we have learnt from the first detections. She will also talk about the formidable experimental challenges which had to be overcome to allow such detections to be made, and will review the current and future status of world-wide efforts to open this new window on the Universe.