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Abstract for an Invited Paper  
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**Einstein, gravitational waves, black holes and other matters<sup>1</sup>**

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More than a hundred years ago, Einstein predicted that there were ripples in the fabric of space-time traveling at the speed of light: gravitational waves. On September 14 2015, the LIGO detectors in Hanford, Washington and Livingston, Louisiana in the US registered for the first time ever a loud gravitational wave signal traveling through Earth, created more than a billion years ago by the merger of two black holes. A spectacular signal was detected by LIGO and the Virgo detector in Europe in 2017, produced by the collision of two neutron stars giving birth to a black hole, generating also electromagnetic waves (light!) detected by many telescopes and helping us understand the origin of gold. Many other gravitational waves from black holes were detected since then. We will describe the history and details of the observations (including some recent ones in 2019), and the gravity-bright future of the field.

<sup>1</sup>Results presented on behalf of the LIGO Scientific Collaboration and the Virgo collaboration.