



European Week of Astronomy and Space Science 3-6 April 2018- Liverpool

Gravitational Interactions: communicating gravitational waves

📅 03.04.2018 ⌚ 17:20 - 17:30 📍 Room 11C 🗨️ Contributed talk

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The detection of gravitational waves [1] has provided the opportunity to engage members of the public, and schools, with this burgeoning field. While the experiments that have made the detections were born decades ago, and the theories that predicted them over a century ago, they have entered the public sphere only relatively recently.

Some of the concepts behind general relativity and gravitational waves are familiar to many (it seems impossible to find a primary school class without an expert in black holes), but the concepts can get unfamiliar rather quickly.

Through videos, web-apps and even mobile games, the science and technology behind gravitational waves is being disseminated in a wide variety of manners. One advantage is that with so many routes to the audience, the various activities can be tailored to specific audiences.

The catalogue of events now in the high single figures [2] from two observing runs of the two Advanced LIGO detectors, with Advanced Virgo joining towards the end of the second run. In addition, 2017 saw the first detection of an event in both gravitational and electromagnetic waves [3]. As a result, there is a drive to "automate" some of the information, which brings with it its own challenges.

In this talk I will run through the various avenues to engage with a range of audiences, along with what has been learned along the way. I will also describe some of the decisions and motivations behind the design of a few of the resources.

[1] LIGO Scientific Collaboration & Virgo Collaboration (2016) Phys. Rev. Lett. 116, 061102

[2] LIGO Scientific Collaboration and Virgo Collaboration (2017) ApJL, submitted; astro-ph:1711.05578

[3] LIGO Scientific Collaboration & Virgo Collaboration (2016) Phys. Rev. Lett. 119, 161101