Global Outreach in Gravitational-Wave Astronomy

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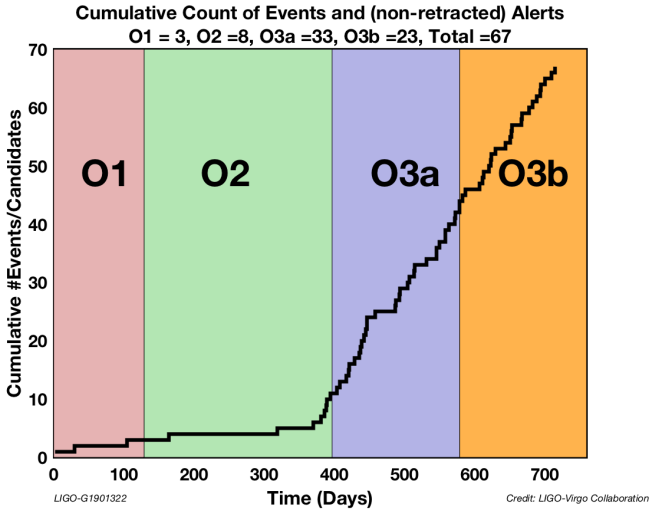
Abstract

Beginning in April 2019, the third Advanced LIGO and Virgo Observing Run featured real-time **open alerts** to facilitate rapid follow-up searches for electromagnetic counterparts to gravitational-wave candidates. Although primarily for professional astronomers, these alerts have also attracted significant global public interest – promoted through our LIGO and Virgo social media. Some highlights of this public engagement are presented.



Project Description

The third Advanced LIGO and Virgo Observing Run (**O3**) ran from April 2019 to March 2020, producing **56 candidate gravitational-wave events**.

Preliminary information about these candidates was shared in real-time via **open alerts**, aimed primarily at professional astronomers, to facilitate rapid follow-up searches for **electromagnetic counterparts**.

Public interest in our alerts has also been very high, aided by extensive **social media and apps** – e.g. @LIGO and "Chirp" (see www.ligo.org)

This engagement has helped us shape **public understanding of how we confirm** if a candidate is a real detection, and why a **global network** of GW detectors is so crucial

Key impacts from our Open Alerts outreach

- Global public engagement with our **O3 open GW alerts** has been very positive: e.g. our **@LIGO** Twitter followers now exceed **100K**
- More than **50 candidate GW events** were announced during O3, with 2 (so far) confirmed as detections: **GW190425** and **GW190412**
- Our **social media** has been used to "Educate, Inform and Entertain" – highlighting *how* we go from a candidate to confirmed detection
- We have mixed science updates with **highlighting the people** who enable that science – e.g. https://humansofligo.blogspot.com/
- Our Gravitational-Wave Open Science Center provides LIGO and Virgo real data + tutorials and software: https://www.gw-openscience.org/