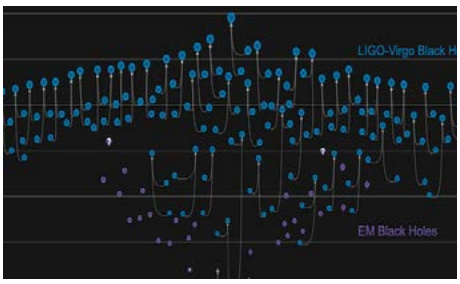

RESEARCH

OVER 100 BLACK HOLES OBSERVED BY THE LIGO-VIRGO TRIO IN THE FIRST RUN OF 2019

The Ligo-Virgo scientific collaboration has published on ArXiv the *scientific catalogue* that presents the final results of the first run of the last observation campaign, the third (O3a), which began in April and ended in October 2019.
39 gravitational waves events have been captured by the interferometers, for a total of over 100 black holes. Most of them are due to mergers of black holes, whose characteristics, however, pose questions on some established astrophysical models and open new scenarios. During the same period, a probable fusion of neutron stars and two probable mixed systems with neutron stars and black holes were also detected.
The researchers of the Virgo and LIGO collaborations have worked a full year to complete the analysis and study all the gravitational signals recorded by the Virgo interferometer and the two LIGO interferometers, together with the cosmic events that generated them millions or billions of light years from Earth. In detail, the events are 36 fusions of black holes, a probable fusion of a binary system of neutron stars and two systems most likely composed of a black hole and a neutron star. The four most relevant results have already been announced and published during the last year. The catalogue published today presents, for the first time, a complete picture of the extraordinarily high number of recorded gravitational signals and their sources. ■