

## **New research line : Gravitational wave astronomy and data analysis**

The IGFAE Gravitational Wave group at the University of Santiago de Compostela is the ‘youngest’ LIGO member group in Spain, but has significant expertise with analysis methods to detect gravitational-wave signals from inspiralling binary systems of black holes and neutron stars, like the 11 events so far catalogued by LIGO-Virgo: IGFAE-GW is currently significantly upgrading the PyCBC detection pipeline to maximize the reach of binary searches in the new O3 network. The group will also be involved in deducing information about the populations of gravitational-wave sources as a whole, including hints that the dozens of likely new binary black hole detections will give on the formation and evolution of these so far mysterious systems. Group members working with the Pierre Auger cosmic ray observatory have previously co-authored with LIGO and Virgo to put the most stringent bounds on emission of ultra-high energy neutrinos from the binary neutron star merger GW170817, and will be continuing to work on multi-messenger followup of O3 events.

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