Contribution ID: **945** Type: **Invited talk in the parallel session**

Very-high-energy gamma-ray follow-up observations of gravitational waves

Monday, 5 July 2021 18:50 (20 minutes)

The precedented multi-messenger campaign launch by the gravitational wave (GW) signal GW170817 and the quasi-simultaneous gamma-ray burst GRB170817A, enabled the study of the various transient counterparts, over different energy bands and timescales, and confirmed for the first time, the hypothesis that binary neutron starts are the progenitor of at least a sub-sample of short GRBs, among many other implications. In this contribution, the different instruments currently observing the very-high-energy (VHE) gamma-ray sky and the main challenges these instruments face when performing GW follow-up observation will be described. An overview of the strategies and searches for VHE emission associated to GW follow-up observations by current gamma-ray experiments during LIGO-Virgo observing runs O1 to O3 will be presented. Finally, we will go through the implications and lessons learned from these observations and we will outline the prospects for the future generation of VHE gamma-ray instruments during the next LIGO-Virgo-KAGRA observing runs.

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Session Classification: High and Very High Energy Emission from Gamma-Ray Bursts

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