



Contribution ID: 1075

Type: **Invited talk in the parallel session**

Probing the progenitors of spinning binary black-hole mergers with long gamma-ray bursts

Monday, 5 July 2021 19:00 (25 minutes)

Long gamma-ray bursts are associated with the core-collapse of massive, rapidly spinning stars. However, the believed efficient angular momentum transport in stellar interiors leads to predominantly slowly-spinning stellar cores. In this talk, I will report on binary stellar evolution and population synthesis calculations, showing that tidal interactions in close binaries not only can explain the observed sub-population of spinning, merging binary black holes, but also lead to long gamma-ray bursts at the time of black-hole formation, with rates matching the empirical ones. We find that ~10% of the GWTC-2 reported binary black holes had a long gamma-ray burst associated with their formation, with GW190517 and GW190719 having the highest probability of being among them.

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Session Classification: Explosive Events Associated with Compact-Object Binary Mergers

Track Classification: Binaries: Explosive events associated with compact-object binary mergers