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## A joint GW–GRB Bayesian study for low-luminosity short GRB population

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We perform a joint gravitational waves/gamma-ray bursts (GW/GRB) Bayesian analysis in order to put constraints on the low-luminosity end of the short gamma-ray burst (sGRB) population. For this purpose we exploit the results of the modeled search for GW transients associated to short and ambiguous GRBs detected during the O1, O2, O3a and O3b runs of the LIGO/Virgo network and a broken power law to describe the luminosity function of our sGRB population. We use then the results obtained to have an estimate on the rate distribution of the low-luminosity sGRB population and on the joint detection rate between sGRB and GW for the future O4 run.

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