

## **Space+ground multiband detections. How many?**

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Joint gravitational-wave detections of stellar-mass black-hole binaries by space- and ground-based observatories will provide unprecedented opportunities for fundamental physics and astronomy. We present a semi-analytic method to estimate multiband event rates by combining selection effects of LIGO or 3rd generation detectors, and the LISA space mission. The expected number of multiband detections are calibrated first on current LIGO/Virgo data, and then through population synthesis simulations of binary stars. We estimate that few to tens of LISA detections can be used to predict mergers detectable on the ground. Conversely, hundreds of events could potentially be extracted from the LISA data stream using prior information from ground detections. We use population synthesis simulations to explore some of the stellar physics that could be constrained with multiband events, and we show that specific formation pathways might be overrepresented in multiband events compared to ground-only detections. More on [arXiv:1902.00021](https://arxiv.org/abs/1902.00021).