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# Towards a gravitational-wave catalogue of boson-star mergers

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Advanced LIGO and Virgo have delivered a conclusive gravitational-wave signal consistent with compact binary mergers in the intermediate-mass black-hole range and as well as several lower significance triggers. These signals have challenged in several ways our vanilla analysis methods, all done within the "canonical" paradigm of quasi-circular black hole mergers. First, under such assumption, GW190521 points to the existence of a black-hole in the PISN gap. Second, analyses performed on the lower significance trigger S200114f with different waveform families report inconsistent results. The barely observable pre-merger emission of these signals, however, allows for the consideration of alternative scenarios both within and beyond the black-hole merger one. In this talk, we will present an analysis of GW190521 and S200114f within the paradigm of the merger of horizonless compact objects known as boson (Proca)-stars, providing estimates of the mass of the underlying ultralight bosons. This could be the first step towards the construction of an eventual catalogue of mergers of compact exotic objects.

## Reference to paper (DOI or arXiv)

https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.126.081101

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