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Searching for Gravitational Waves from Compact Binaries with Precessing Spins IAN HARRY, ALEJANDRO BOHE, STEPHEN PRIVITERA, ALESSANDRA BUONANNO, AEI Potsdam — Compact binary searches with aligned-spin (non-precessing) waveform templates are now well-established within LIGO/Virgo. The use of precessing-spin templates is still disfavored as these have never been shown to actually improve search sensitivity. However, even a single observation of a highly precessing compact binary merger could provide unique astrophysical insights into the formation of these sources. Here, we demonstrate a new method to search for gravitational waves from the merger of binary black holes and neutron-star–black-hole binaries with precessing spins. We also quantify the improvement, in terms of search sensitivity, that using this new method will provide.

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