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**How well do harmonics and merger and ringdown signals improve parameter estimation?** EVAN OCHSNER, ALESSANDRA BUONANNO, YI PAN, University of Maryland, B.S. SATHYAPRAKASH, Cardiff University — It is now well-known that the inclusion of higher harmonics of the orbital phase in gravitational waveforms greatly improves the parameter estimation and distance reach of compact binaries for which the inspiral takes place in the sensitive band of interferometric gravitational-wave detectors. This is also true when the merger and ringdown portions of the waveform are included. In this work we use effective-one-body inspiral-merger-ringdown waveforms with higher harmonics to study the improvement in the estimation of source parameters over simpler inspiral waveforms which contain only the dominant harmonic. The implications for second and third generation ground-based gravitational-wave detectors will also be discussed.

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