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Supermomentum balance laws as a tool to improve gravitational waveforms¹ NEEV KHERA, ABHAY ASHTEKAR, TOMMASO DE LORENZO, Pennsylvania State University, BADRI KRISHNAN, Albert Einstein Institute — Current non-precessing gravitational waveform models do not (reliably) incorporate the $(2,0)$ mode. This difficulty, in part, is due to the challenges of numerically extracting this mode accurately. However for future detectors this must be rectified. We present a technique based on supermomentum balance laws at null infinity which can be used to improve the $(2,0)$ mode waveforms. We apply this to SXS binary black hole simulations and find a significant improvement.

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