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On-shell Approaches for Gravitational Wave Physics: waveform and beyond

Monday, 20 April 2026 12:05 (25 minutes)

The detection of gravitational waves has created a pressing need for high-precision theoretical models for binary systems. In this talk, I will review recent progress in the analytic computation of physical observables for binary black hole and neutron star systems using modern on-shell methods. I will focus on how the on-shell methods, which focus directly on gauge-invariant observables, offer significant simplifications over traditional formalisms. Furthermore, they provide new insights into the structure of classical general relativity. As an illustration, I will present a newly identified violation of the peeling behavior in the asymptotic metric.

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