

Lensing-Induced Biases in Gravitational-Wave Inference and Tests of General Relativity

Friday 31 October 2025 14:15 (15 minutes)

As gravitational-wave detectors reveal a growing population of black hole mergers, a hidden source of bias may already be shaping how we interpret them. Gravitational-wave lensing—an inevitable consequence of massive structures in the Universe—can distort signals in ways that mimic precession or apparent deviations from General Relativity. I will present a systematic study of lensing-induced biases in gravitational-wave parameter estimation and tests of General Relativity, showing how gravitational lensing can produce misidentified physical effects even when not confidently detected. Understanding and disentangling these effects will be critical to uncovering the true physics encoded in gravitational-wave signals.

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Session Classification: Friday Afternoon Session 1