

# Causality and Kramers-Kronig Relations in Gravitational Lensing

*Wednesday, 4 March 2026 15:30 (1 hour)*

In gravitational-wave lensing, wave-optical effects become significant when the wavelength is comparable to the lens's characteristic scale. I show causality imposes fundamental constraints on the lensed waveform that go beyond geometric optics and transform it to the Kramers-Kronig relations. I will also discuss application of the KK relations to validating lensed GW candidates in a model-independent manner.

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