

# JOINT TUFTS/MIT COSMOLOGY SEMINAR

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## *Detectable gravitational wave tails from stars and compact objects*

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It has long been known that when electromagnetic and gravitational waves travel through vacuum in a curved spacetime they develop "tails" that travel more slowly and fill the interior of the lightcone. Further, it has long been expected that this tail signal is undetectably weak. In this talk we will discuss this phenomenon and some new results that suggest that not only are the tails real (carry energy and momentum) but may be imminently detectable. In particular, we will see that gravitational waves are efficiently scattered by the curvature sourced by compact objects. The resulting "gravitational glint" would be recognizable as briefly delayed echoes of the primary signal emanating from a direction extremely close to the primary source. Detection of the tail would open the possibility of using GRAvitational Detection And Ranging (GRADAR) to map the Universe and conduct a comprehensive census of massive compact object, and ultimately to explore their interiors.

**Tuesday, March 29, 2022, 2:30 pm**

Zoom link will be distributed to joint cosmology seminar mailing list. See <https://cosmos.phy.tufts.edu/mailman/listinfo/cosmology-seminar> to join.

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