



Department of  
Theoretical Physics

# THE QUANTUM SPACETIME SEMINAR SERIES

## Gravity: the force from the ultraviolet (Zoom Seminar)

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(McGill U)

**Date:** July 9, 2021

**Time:** 4.30 pm IST

Zoom link shall be shared separately



Does our world respect causality at all energy scales? We explore constraints on low-energy dynamics which stem from this assumption. Obstructions to a causal high-energy completion can be diagnosed using dispersive sum rules, which connect low and high energies. While these originate in optics and quantum field theory, I will argue that their true purpose is gravity, due to the maximal growth rate of this force with energy. For non-gravitational effective theories, dispersion relations turn dimensional analysis estimates into sharp numerical bounds; I will present initial results bounding causal theories of gravity.