## Trace anomalies and the dilation-graviton amplitude

Wednesday, 21 February 2024 11:00 (45 minutes)

We consider 3+1 dimensional Quantum Field Theories (QFTs) coupled to the dilaton and the graviton. We show that the graviton-dilaton scattering amplitude receives a universal contribution which is helicity flipping and is proportional to  $(\Delta c - \Delta a)$  along any RG flow, where  $\Delta c$  and  $\Delta a$  are the differences of the UV and IR c- and a-trace anomalies respectively. This allows us to relate  $(\Delta c - \Delta a)$  to spinning massive states in the spectrum of the QFT. We test our predictions on a simple example of a massive free scalar. We discuss possible applications.

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