



Contribution ID: 601  
compétition)

Type: Oral (Student, In Competition) / Orale (Étudiant(e), inscrit à la

## Particle detectors in (curved) space: the equivalence principle and QFT.

*Thursday, 18 June 2015 10:30 (15 minutes)*

Classically, the equivalence principle tells us that an observer cannot determine the global structure of spacetime using local measurements. After reviewing previous results demonstrating the sensitivity of detectors to spacetime, I proceed to our most recent result: that one can distinguish between a detector in flat space and one inside a hollow spherical shell by measuring the energy required to switch it on and off. These results suggest that, in principle, a particle detector can be used to probe the shape of spacetime far away from the detector itself due to the non-local nature of quantum fields.

**Primary author:** NG, Keith (University of Waterloo)

**Presenter:** NG, Keith (University of Waterloo)

**Session Classification:** R1-5 Quantum Gravity and Quantum Cosmology (DTP) / Gravité quantique et cosmologie quantique (DPT)

**Track Classification:** Theoretical Physics / Physique théorique (DTP-DPT)