



# ***EINLADUNG***

im Rahmen Literaturseminars

zum Vortrag

von

**Philipp Höhn**

(ESI)

über

***„From quantum reference systems  
to quantum general covariance“***

## **Abstract:**

Despite its importance in general relativity, a quantum notion of general covariance has not yet been established in quantum gravity and cosmology, where, given the a priori absence of coordinates, it is necessary to replace classical frames with dynamical quantum reference systems. As such, quantum general covariance bears on the ability to consistently switch between the descriptions of the same physics relative to arbitrary choices of quantum reference systems. In this talk, I will summarize a recent systematic method for such switches, which works in analogy to coordinate changes on a manifold, except that these 'quantum coordinate changes' proceed between different Hilbert spaces.

I will illustrate this method by means of spatial quantum reference frames and a simple quantum cosmological model. Time permitting, I might also discuss conceptual implications for quantum gravity. (Based on arXiv:1809.00556, 1809.05093, 1810.04153 and 1811.00611.)

**Zeit:** Donnerstag, 13.12.2018, **14.00**

**Ort:** Arbeitsgruppe Gravitation, Währinger Straße 17,  
Raum 218, 2. Stock

gez.: P. Chrusciel, D. Fajman