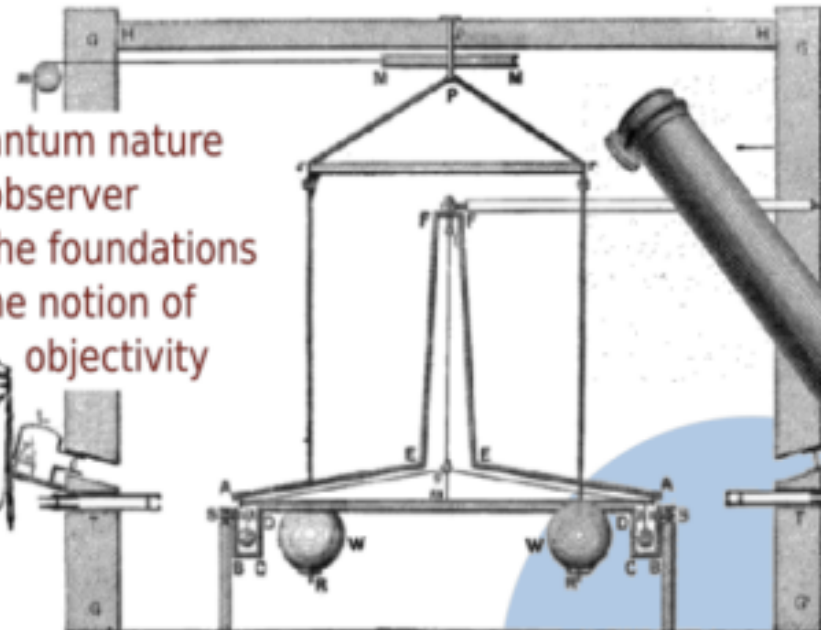


quantum reference frames

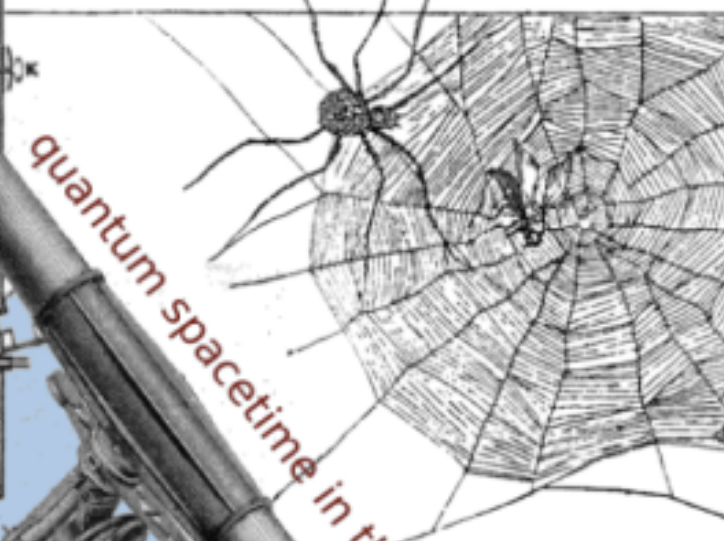


the quantum nature of the observer and the foundations of the notion of objectivity

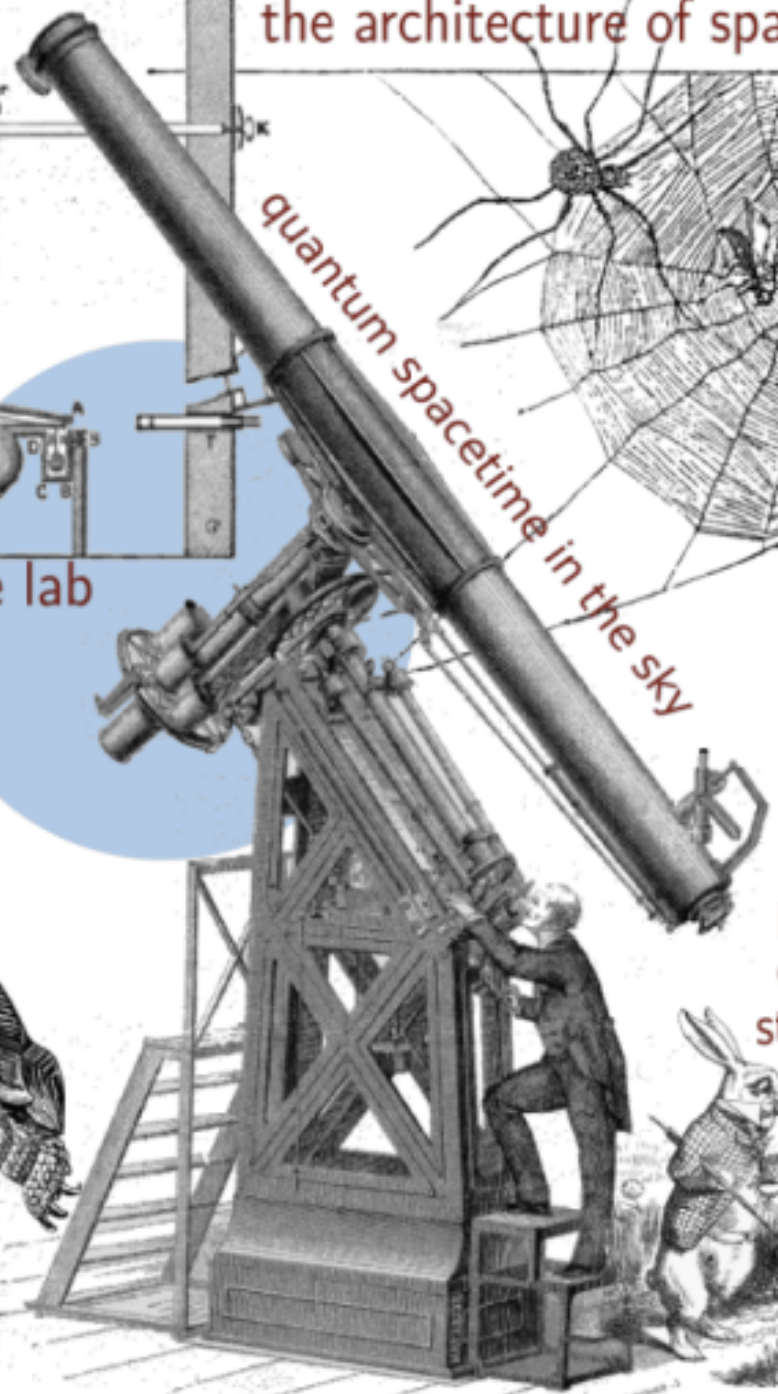


quantum spacetime in the lab

the architecture of spacetime



quantum spacetime in the sky



super positions of causal structures

discreteness



general covariant and background independent quantum theory

symmetry  
invariance  
time