**DANISH QUANTUM FIELD
THEORY MEETING 2025**

August 13 - 14
University of Southern Denmark (Odense)

Contribution ID: **4**   Type: **not specified**

Perturbative Computations from Curved Spacetimes

Wednesday 13 August 2025 13:00 (30 minutes)

Given the impressive results for classical observables obtained by field theoretic approaches to gravitational systems, we can ask if these tools can help us in new regimes and problems of interest. Amplitude tools are particularly well suited to derive observables for the binary system in a post-Minkowskian expansion, where they have achieved complete results to fourth order in Newton's constant. However, obtaining strong field results is a complicated problem. From the perspective of perturbative quantum field theory, classical solutions in general relativity are remarkable objects; they make manifest a resummation of an infinite series of Feynman diagrams encoding information to all orders in Newton's constant. I will describe an effective field theory formalism tailored for computations about nontrivial classical backgrounds, and present the potential, and hurdles, in combining advantages from classical gravitational and field theoretic techniques to address questions related to the binary inspiral problem.

Presenter: SHAH, Nabha