Contribution ID: **9** Type: **not specified**

Multi-particle observables from a finite Euclidean spacetime*

Friday 27 May 2022 14:00 (1 hour)

Numerical calculations using lattice-regularized QFTs are a powerful tool to understand nonperturbative systems when analytic methods are unavailable. However, the utility of numerical results can be affected by two issues: (i) calculations are necessarily performed in a finite-volume spacetime and (ii) Euclidean- (rather than Minkowski-) signature correlation functions are evaluated. Both aspects play an especially important role for multi-particle observables including scattering and decay amplitudes and inclusive rates. In this talk, I will discuss progress in extracting such observables from numerical lattice field theory, based on two strategies. One is to use the finite-volume as a tool, rather than an unwanted artefact, and to apply generic field theoretic relations between finite-volume quantities and infinite-volume amplitudes. The second is to carefully regulate the inverse Laplace transform, in order to estimate Minkowski observables directly from numerical Euclidean correlators.

Presenter: HANSEN, Maxwell (University of Edinburgh)