**Unravelings of time-local quantum master equations**

Paul Menczel

RIKEN, Japan

It is a well-known feature of Lindblad equations that their dynamics can be unraveled in quantum trajectories. This feature not only makes it possible to study the full statistics of fluctuating variables in the system, but it also provides access to efficient numerical Monte-Carlo simulations. Here, we discuss time-local quantum master equations that do not have the Lindblad form, which appear for example in the study of non-Markovian open quantum systems. We show that such master equations can still be unraveled in quantum trajectories, making it possible to apply Monte-Carlo tools to non-Markovian setups. We discuss the convergence behavior of such unravelings at long times as well as the correspondence between the unravelings and the physical fluctuations. Moreover, we introduce the non-Markovian Monte-Carlo solver which is based on this theory and was recently added to QuTiP to facilitate simulations of Lindblad equations involving negative rates.