



School of Nano Science (IPM)



Condensed Matter & Statistical  
Physics Group (IPM)

## Weekly Webinar

### Correlation-Picture Approach to Open-Quantum-System Dynamics

Speaker: **Dr. Sahar Alipour**

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Espoo, Finland*

We introduce a dynamical picture, referred to as correlation picture, which connects a correlated bipartite state to its uncorrelated counterpart. This picture allows us to derive an exact dynamical equation for a general open-system dynamics with system-environment correlations included. This exact dynamics is in the form of a Lindblad-like equation even in the presence of initial system-environment correlations. For explicit calculations, we also develop a weak-correlation expansion that allows us to introduce systematic perturbative approximations. This expansion provides approximate master equations that can feature advantages over existing weak-coupling techniques. As a special case, we derive a Markovian master equation, which is different from existing approaches. We compare our equations with corresponding standard weak-coupling equations using two examples, for which our correlation-picture formalism is more accurate, or at least as accurate as the weak-coupling equations.

**Wednesday, 13 January 2021 (۱۳۹۹ دی ۲۴), 14:00-15:00**

Virtual Meeting Room (please log in as a guest):

<https://www.skyroom.online/ch/schoolofnanoscience/weeklyseminars>

