

# Joint CQSE and CASTS Seminar

Weekly Seminar  
Dec. 8, 2017 (Friday)

TIME Dec. 8, 2017, 14:30 ~ 15:30  
TITLE Digital quantum simulator in the presence of a bath  
SPEAKER Dr. Yi-Cong Zheng  
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of Singapore  
PLACE Rm716, CCMS & New Physics Building, NTU

## Abstract

For a digital quantum simulator (DQS) imitating a target system, we ask the following question: Under what conditions is the simulator dynamics similar to that of the target in the presence of coupling to a bath? In this talk, we derive conditions for close simulation for three different physical regimes, replacing previous heuristic arguments on the subject with rigorous statements. In fact, we find that the conventional wisdom that the simulation cycle time should always be short for good simulation need not always hold up. Numerical simulations of two specific examples strengthen the evidence for our analysis and we go beyond to explore broader regimes.

