



NITheP cordially invites you to a seminar by

Dr Marco Tomamichel

University of Technology, Sydney

Date: Monday, 26th November 2018

Time: 11h30 -12h30

Venue: NITheP Seminar Room, 3rd Floor, H-Block

Title: Efficient online quantum state estimation using a matrix-exponentiated gradient method

Abstract: We explore an online algorithm for quantum state estimation based on the matrix exponentiated gradient method previously used in machine learning. We show convergence of the estimate in probability to the true state in the case of noiseless measurements with a constant learning rate, and in the case of noisy measurements with an adaptive learning rate. We then propose to use running averages of the measurement statistics and a constant learning rate to overcome the noise problem. The proposed algorithm is numerically compared with batch maximum-likelihood and least-squares estimators. The results show a superior performance of the new algorithm in terms of accuracy and runtime complexity.

Coffee & muffins at 11h05