

Department of Applied Mathematics, University of Waterloo

GRADUATE STUDENT SEMINAR

MONDAY, OCTOBER 3RD, 2011
16:30 – 17:30; MC 5136



How best to sample a periodic probability distribution

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Suppose you have the ability to sample a periodic probability distribution which you want to know the period of. I will show you how to do it.

Measurements of a single two-level quantum mechanical system (a qubit) evolving under a time-independent Hamiltonian produce a probability distribution that is periodic in the evolution time. The period of this distribution is an important parameter in the Hamiltonian. Here, we explore how to design experiments so as to minimize error in the estimation of this parameter. While it has been shown that useful results may be obtained by minimizing the risk incurred by each experiment, such an approach is computationally intractable in general. Here, we motivate and derive heuristic strategies for experiment design that enjoy the same exponential scaling as fully optimized strategies.

****This talk will be accessible to all -- In particular, no knowledge of quantum mechanics will be assumed****



PIZZA, SOFT DRINKS, AND SNACKS PROVIDED
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