Title:

"Quantum automata, computability and universality"

Abstract:

Drawing on the distinction between finite-dimensional quantum evolutions ("automata") and infinite-dimensional evolutions ("operators"), I will explore their consequences upon two well-established concepts in Computer Science : computability and universality. Most of the results I will mention will rely on a decomposition of quantum operators, into quantum automata---which is based upon the tacit assumption of a fixed partial order. Time-allowing, I will try to touch on the topical question of quantum partial orders.