Towards a Semantics for Higher-Order Quantum Computation

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The search for a semantics for higher-order quantum computation leads naturally to the study of categories of continuous normed cones. In this talk, I will describe two such categories of cones, and the *-autonomous structure that they possess. I will also discuss why neither of these categories fully characterizes the higher-order quantum functionals (or even the probabilistic functionals, which arise as a special case). I will argue that, nevertheless, continuous normed cones are interesting objects to study, and that they are a likely a stepping stone on the way towards a fully complete semantics of higher-order quantum computation.