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Towards a Quantum Predictive Control Mathematical Formulation YASSER A. DAVIZON-CASTILLO, Department of Electrical Engineering, Arizona State University — Quantum Feedback Control presents an interdisciplinary research work between Control Theory and Quantum Physics. A novel mathematical formulation is presented for Quantum Predictive Control (QPC) algorithm, based on Receding Horizon Control philosophy at the quantum level. The application of Heisenberg Uncertainty Principle, to quantify the uncertainty in position and momentum, in a real-time control framework is introduced. An estimate of the Sampling Time at quantum level is demonstrated, applying to a case of study for a double well quantum system using the QPC algorithm.

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