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Constructing converging control channels from unsharp measurements

In this talk I review a control strategy for quantum systems where the control channel utilizes information about the system and then performs an actuation on the quantum state based on the state information [1]. The control channel is built on the polar decomposition of Kraus operators. I demonstrate that such a control channel still works even if the probability of the measurement outcome is zero, by designing unitary feedback matrices for measurement outcomes that project the system into a state orthogonal to the target state in order to drive the system back towards the target state [2].

[1] PHYSICAL REVIEW A 97, 060102 (2018)
[2] PHYSICAL REVIEW A 104, 052614 (2021)

Apply to be considered for a student ; award (Yes / No)?

Yes

Level for award;(Hons, MSc, PhD, N/A)?

Hons

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