Quantum synchronization

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Experimental progress in optomechanical systems, in trapped-ion setups, and in superconducting circuit-QED architectures has motivated the study of synchronization in quantum systems. In my talk I would like to describe theoretical approaches to the synchronization problem for quantum oscillators and discuss some of the issues and open questions [1-4].

[1] N. Lörch, S.E. Nigg, A. Nunnenkamp, R.P. Tiwari, and C. Bruder, Phys. Rev. Lett. 118, 243602 (2017).

[2] A. Roulet and C. Bruder, Phys. Rev. Lett. 121, 053601 (2018).

[3] A. Roulet and C. Bruder, Phys. Rev. Lett. 121, 063601 (2018).

[4] M. Koppenhöfer, C. Bruder, and A. Roulet, Phys. Rev. Research 2, 023026 (2020).