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Light cones for open quantum systems

TUM Garching, room 01.07.023, Boltzmannstr. 3, 85748 Garching Forschungszentrum and via Zoom:
https://tum-conf.zoom.us/j/64587980924?pwd=Wlh1cmtoMGthVUZhUFlId2tTRlFDdz09
Meeting ID: 645 8798 0924
Passcode: 899317

Abstract: We consider Markovian open quantum dynamics (MOQD) in continuous space. We show that, up to small-probability tails, the supports of quantum states evolving under such dynamics propagate with finite speed in any finite-energy subspace. More precisely, we prove that if the initial quantum state is localized in space, then any finite-energy part of the solution of the von Neumann-Lindblad equation is approximately localized inside an energy-dependent light cone. We also obtain an explicit upper bound for the slope of this light cone. Joint work with S. Breteaux, J. Faupin, D.H. Ou Yang, I.M. Sigal, and J. Zhang.