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Global asymptotic stability of nonautonomous master equations

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We consider nonautonomous master equations of finite-state, continuous-time Markovian jump processes with uniformly continuous and bounded transition matrix functions. The Earnshaw–Keener conjecture from 2010 states that if the omega-limit set of the transition matrix function contains at least one matrix which is neither decomposable nor splitting, then the difference of any two probability distribution solutions tends to zero at infinity. The conjecture has been confirmed under the additional assumption that the transition matrix function is almost-automorphic. In this talk, we give a proof of the conjecture in its full generality.

[1] B. A. Earnshaw, J. P. Keener, Global asymptotic stability of solutions of nonautonomous master equations, *SIAM J. Appl. Dyn. Syst.*, **9**(2010), No. 1, 220–237.

[2] M. Pituk, Global asymptotic stability of nonautonomous master equations: A proof of the Earnshaw–Keener conjecture, *J. Differential Equations*, **364**(2023), 456–470.