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Multipartite entanglement of X-matrices in Davies environment

We consider time evolution of genuinely multipartite entangled N-qubit states initially prepared in the form of X-matrices.
In the scenario that we analyse, one qubit of the considered system is coupled to the thermal environment modelled using the rigorous
Davies theory. We present analytical formulae for the genuinely multipartite concurrence in such system as a function of time both in
scenario with and without energy dissipation. In particular, we analyse the neccessary and sufficient conditions for presence of so
called entanglement sudden death phenomenon.

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