

On conjugate times of LQ optimal control problems

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Motivated by the study of linear quadratic optimal control problems, we consider a dynamical system with a constant, quadratic Hamiltonian, and we characterize the number of conjugate times in terms of the spectrum of the Hamiltonian vector field \vec{H} . We prove the following dichotomy: the number of conjugate times is identically zero or grows to infinity. The latter case occurs if and only if \vec{H} has at least one Jordan block of odd dimension corresponding to a purely imaginary eigenvalue.