

# ASYMPTOTIC BEHAVIOR OF SOLUTIONS TO HAMILTON-JACOBI-BELLMANN EQUATIONS

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The analysis of the ergodic behavior of solutions to Hamilton-Jacobi-Bellmann equations has a long history going back to the seminal paper by [Lions, P.-L., Papanicolaou, G. and Varadhan, S.R.S]. Since this work, the subject has grown very fast and when the Hamiltonian is of Tonelli type a large number of results have been proved. However, few results are available if the Hamiltonian fails to be Tonelli, i.e., the Hamiltonian is neither strictly convex nor coercive with respect to the momentum variable. In particular, such results cover only some specific structure and so, the general problem is still open. In this talk, I will present some recent results obtained in collaboration with Piermarco Cannarsa and Pierre Cardaliaguet concerning the long time-average behavior of solutions to Hamilton-Jacobi-Bellman equations arising from optimal control problems with control of acceleration, first, and then from optimal control problems of sub-Riemannian type. We will finally present some open problems related to the topic.

## REFERENCES

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- [3] P. CANNARSA AND C. MENDICO, *Aubry set for sub-Riemannian control systems*, Forthcoming.