

EXTREMAL NORMS FOR LINEAR COCYCLES

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In traditional Ergodic Optimization, one seeks to maximize Birkhoff averages. The most useful tool in this area is the celebrated Mañé Lemma, in its various forms. In a joint work with Eduardo Garibaldi, we prove a non-commutative Mañé Lemma, suited to the problem of maximization of Lyapunov exponents of linear cocycles or, more generally, vector bundle automorphisms. More precisely, we provide conditions that ensure the existence of an extremal norm, that is, a Finsler norm with respect to which no vector can be expanded in a single iterate by a factor bigger than the maximal asymptotic expansion rate. Therefore we extend the classic concept of Barabanov norm, which is used in the study of the joint spectral radius. We obtain several consequences, including sufficient conditions for the existence of Lyapunov maximizing sets.