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*Dynamics, stability and symmetric minimization*

We discuss the connection between minimization of action and hyperbolic structure of invariant sets. The notion of absolute minimization always leads to hyperbolic behavior. The weaker notion of symmetric minimization over fundamental time domain, or equivalently minimization over a symmetry class may involve hyperbolic behavior. We give examples from N-body dynamics and outline the proof of hyberbolicity in the reduced space for the periodic hip hop family of the 2N-body problem with equal mass. Finally we state a condition for periodic symmetric minimizing orbits to be absolutely minimizing over arbitrary compact time intervals. This condition concerns the representation of the reversing subgroup of the spatio-temporal group for the given periodic solution.