

Local spectral rigidity of biinvariant metrics on compact Lie groups

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Dedicated to 60th birthday of Sylvestre Gallot

We show that a biinvariant metric on a compact connected Lie group G is spectrally isolated within the class of left-invariant metrics. In fact, we prove that given a biinvariant metric g_0 on G there is a positive integer N such that, within a neighborhood of g_0 in the class of left-invariant metrics of at most the same volume, g_0 is uniquely determined by the first N distinct non-zero eigenvalues of its Laplacian (ignoring multiplicities).