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A lower bound for the matrix pressure function, and applications

Abstract:

We prove a systematic lower bound for the matrix pressure and singular value pressure functions which arise in the study of self-affine fractals. As applications we give a new proof that the affinity dimension of a self-affine set depends continuously on the linear parts of the affinities, prove a general theorem relating the joint spectral radius of a set of matrices to the zero-temperature limit of the corresponding matrix pressure function, and give the first general algorithm for the computation of the affinity dimension of a self-affine set.