

On the Real Entropy of Quadratic Rational Maps

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There is an extensive literature on the entropy behavior of polynomial interval maps as they vary in families. In particular, the monotonicity problem which asks about the connectedness of the level sets of the entropy function (the isentropes) has been of immense interest and is very well studied in the context of polynomial interval maps of full modality. In the much broader context of rational maps a real entropy function can be set up on the space of Möbius conjugacy classes of real rational maps. The main focus of this talk is the case of degree two maps where there is an explicit description of the moduli space of real quadratic rational maps due to Milnor. This space admits a natural partition to several regions based on the modality and the degree of the restriction of ambient rational maps to the real circle. One can establish the monotonicity over some of these regions and its failure over certain another region. Both of these results are supported by experimental evidence.