MEAN FIELD COUPLING OF EXPANDING CIRCLE MAPS

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Abstract: N points (or sites) on the circle are investigated, evolved by the composition of the doubling map acting on the individual points, and a mean field coupling. For finitely many sites, two distinct bifurcation values of the coupling strength have been identified in the literature, corresponding to the loss of contraction and, specifically for N=3, to the loss of ergodicity. On the one hand, these phenomena are reconsidered and an interpretation is provided in terms of the synchronization of the sites. On the other hand, by focusing on the evolution of distributions, a new viewpoint is initiated which can be regarded as a generelization to the case when N is infinite. This is joint work with Fanni Selley.