Maps, spectra and trees

Stefano Isola, Università di Camerino

Abstract:

I'll introduce a one-parameter family of piecewise analytic markov interval maps interpolating between the Tent map and the Farey map, with the property that their transfer operators leave invariant the same Hilbert space of analytic functions and one can study the transition from discrete to continuous spectrum.
These maps act as shifts on a family of binary trees which interpolate between the dyadic tree and the Farey tree, and one can naturally associate to each row of a tree a finite dimensional statistical mechanical model whose interaction turns out to be ferromagnetic and whose partition function is directly related to the (generalized) transfer operator of the corresponding map. Some general results as well as some open problems will be discussed.