

Equilibrium measures in an external created by fixed charges

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We are going to describe the equilibrium measure in the real line in presence of an external field which is the potential created by several fixed charges. These fixed charges are located in the complex plane and the negative ones (attractors) have to be placed outside the real line. One of the main tools is the use of dynamical systems for the main unknown of the equilibrium as one of the parameters of the external field varies. We also will see briefly the applications of these equilibrium measures to problems of asymptotics of zeros of orthogonal polynomials, asymptotics of zeros of polynomial solutions of the Lamé differential equation and models with random matrices.