Mathematics > Spectral Theory

Pluri-potential theory on Grauert tubes of real analytic Riemannian manifolds, I

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We develop analogues for Grauert tubes of real analytic Riemannian manifolds (M,g) of some basic notions of pluri-potential theory, such as the Siciak extremal function. The basic idea is to use analytic continuations of eigenfunctions in place of polynomials or sections of powers of positive line bundles for pluripotential theory. The analytically continued Poisson-wave kernel plays the role of Bergman kernel. The main results are Weyl laws in the complex domain, distribution of complex zeros of eigenfunctions on locally symmetric spaces, and estimates of triple products of eigenfunctions.

Comments: First in a series. Much of the article is expository. In particular, it goes over Hadamard's parametrix construction for his branched meromorphic fundamental solution and applies it to construct a parametrix for the Poisson wave group

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