

Martin functions of Fuchsian groups and character automorphic subspaces of the Hardy space in the upper half plane

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Abstract: We establish exact conditions for non triviality of all subspaces of the standard Hardy space in the upper half plane, that consist of the character automorphic functions with respect to the action of a discrete subgroup of $SL_2(\mathbb{R})$. Such spaces are the natural objects in the context of the spectral theory of almost periodic differential operators and in the asymptotics of the approximations by entire functions. A naive idea: it should be completely parallel to the celebrated Widom characterization for Hardy spaces on Riemann surfaces with a minor modification, namely, one has to substitute the Green function of the domain with the Martin function. Basically, this is correct, but...

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