

The abstract Titchmarsh-Weyl M -function and its relation to the spectrum

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In the setting of adjoint pairs of operators we consider the question: to what extent does the Weyl M -function see the same singularities as the resolvent of a certain restriction A_B of the maximal operator? We obtain results showing that it is possible to describe explicitly certain spaces \mathcal{S} and $\tilde{\mathcal{S}}$ such that the resolvent bordered by projections onto these subspaces is analytic everywhere that the M -function is analytic.

We then look at specific examples where we determine the space \mathcal{S} explicitly and which together indicate that the abstract results are probably best possible.