

## Riesz Basis Property of Eigenfunctions of One Boundary-Value Transmission Problem

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### Abstract

We consider a Sturm-Liouville equation together with eigendependent boundary conditions and two supplementary transmission condition at the one inner point. Note that some special cases of the considered problem arise after an application of the method of separation of variables to the heat transfer problems, in vibrating string problems when the string is loaded additionally with point masses, in diffraction problems etc. We introduce a new inner product in the Sobolev Spaces  $W_2^1(a, b)$  and show that eigenfunctions of our problem form a Riesz basis of this modified space.

### References

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