

The inverse spectral problem for indefinite strings

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Abstract. Solving the equation of motion for a vibrating string with inhomogeneous mass distribution on a semi-axis by means of Fourier's method leads to a particular Sturm-Liouville spectral problem. The solution of the corresponding inverse spectral problem, describing the totality of all associated Weyl-Titchmarsh functions, goes back to work of M. G. Krein from the 1950s and of L. de Branges from the 1960s. I will review this result and show how it can be generalized to strings with indefinite mass distribution. This talk is based on joint work with A. Kostenko.