

Lukasz Rzepnicki

Title:

Dirac system, Sturm-Liouville equations damping string

Abstract:

The main focus of this talk is the matrix Cauchy problem for the Dirac system on the interval $[0, 1]$. We propose a new approach for the study of asymptotic behaviour of its solutions with respect to a spectral parameter $\mu \in \mathbb{C}$, where $\mu \rightarrow \infty$ and $|\operatorname{Im} \mu| \leq c$. As an application, we obtain new, sharp asymptotic formulas for eigenfunctions of Sturm–Liouville operators with singular and integrable potentials. This type of results can be applied to analyze spectral problems associated with a damped string equation. The talk is based on joint work with Alexander Gomitko.