

# Solution of a generalized Riemann boundary value problem with a Carleman shift in the real line

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## Abstract

In the real line we consider singular integral operators with a linear Carleman shift and complex conjugation, acting in  $\tilde{L}_2(\mathbb{R})$ , the space of all Lebesgue measurable complex value functions on  $\mathbb{R}$  with  $p = 2$  power. We show that the original singular integral operator with shift and conjugation is, after extension, equivalent to a singular integral operator without shift and with a  $4 \times 4$  square matrix coefficients. By exploiting the properties of the factorization of the symbol of this last operator, it is possible to describe the solution of a generalized Riemann boundary value problem with a Carleman shift.