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**SPECTRUM OF THE CAUCHY SINGULAR INTEGRAL
OPERATOR IN WEIGHTED
REARRANGEMENT-INVARIANT SPACES**

The Cauchy singular integral operator S is one of the main actors in the theory of Toeplitz operators, Riemann-Hilbert problems, Wiener-Hopf and singular integral equations and other fields of Harmonic and Complex Analysis. We are going to describe the spectrum of the operator S in weighted rearrangement-invariant spaces. These spaces are wide generalizations of classical Lebesgue, Orlicz and Lorentz spaces. During the last few years it was discovered that, in dependence on the curves the operators acts on and on the weights involved rearrangement-invariant spaces, there is a surprising metamorphosis of the (local) spectra of S from circular arcs via horns and logarithmic double spirals to so-called logarithmic leaves with a halo. Technical details will be omitted, but many beautiful pictures of local spectra will be shown.