Böttcher, Albrecht; **Spitkovsky, Ilya M.**

Wiener-Hopf integral operators with PC symbols on spaces with Muckenhoupt weight. (English) Zbl 0779.45002

Rev. Mat. Iberoam. 9, No. 2, 257-279 (1993).

Let $A_p (p > 1)$ denote the set of all nonnegative functions w on $\mathbb{R}$ such that the singular integral operator S,

$$(Sf)(x) = \frac{1}{\pi i} \int_{-\infty}^{\infty} \frac{f(t)}{t-x} dt,\ x \in \mathbb{R}$$

is bounded on the space $L^p(\mathbb{R}, w)$ and let W be a Wiener-Hopf integral operator defined by the formula

$$(Wf)(x) = \sum_{j=1}^{m} \frac{c_j}{\pi i} \int_0^{\infty} \frac{e^{i\alpha_j (t-x)} f(t)}{t-x} dt + \int_0^{\infty} k(x-t) f(t) dt,\ x > 0,$$

where $c_j \in \mathbb{C}$ and $\alpha_j \in \mathbb{R}$ are given numbers and $k \in L^1(\mathbb{R})$ is a given function. The main result of the present paper describes the essential spectrum of W in the case W is any weight belonging to Ap. The essential spectrum of W is the set of all $\lambda \in \mathbb{C}$ for which $W - \lambda I$ is not Fredholm.

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MSC:

45E10 Integral equations of the convolution type (Abel, Picard, Toeplitz and Wiener-Hopf type)
45C05 Eigenvalue problems for integral equations
47B35 Toeplitz operators, Hankel operators, Wiener-Hopf operators

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