Vekua, N. P.
On a Riemann-Hilbert problem with rational coefficients in the case of a circle of unit radius. (Russian. English summary) Zbl 0706.30030

Let \( D^+ \) be the domain \(|z| < 1\), \( D^- \) the domain \(|z| > 1\) and let \( L \) be the circle \(|z| = 1\). It is required to find functions \( \Phi_k(z) = u_k + iv_k \) \((k = 1, 2, \ldots, n)\) holomorphic in \( D^+ \) and continuous in \( D^+ + L \), satisfying on \( L \) the boundary conditions

\[
\sum_{k=1}^{n} a_{\alpha k}(t_0) u_k(t_0) - \sum_{k=1}^{n} b_{\alpha k} v_k(t_0) = c_\alpha(t_0) \quad (\alpha = 1, 2, \ldots, n),
\]

where \( a_{\alpha k}, b_{\alpha k}, c_\alpha \) are real valued rational functions given on \( L \). It is shown in short that an effective solution of this problem can be obtained. For the completeness see the chapter 3 of a book by the author [Systems of singular integral equations (1970; Zbl 0202.118)].

Reviewer: D. Mitrović

MSC:

- 30E25 Boundary value problems in the complex plane
- 45E99 Singular integral equations

Cited in 1 Review