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**Almost periodic Riemann-Hilbert problems, Toeplitz operators
and the table method**

A number of properties of Toeplitz operators with 2×2 symbol G can be studied from the solutions to an associated Riemann-Hilbert problem (RHP) $G\phi_+ = \phi_-$, where ϕ_{\pm} belong to certain spaces of analytic functions in \mathbb{C}^{\pm} . We present here an approach to determining solutions to a RHP of that type, with almost periodic coefficient G , based on the so-called table method presented for the first time in [1]. This allows to establish necessary and sufficient conditions for the invertibility of the Toeplitz operator and to determine its inverse explicitly. Some unexpected, but interesting results regarding the Fourier spectrum of the solutions are obtained which are not apparent through other approaches to the same problem.

References

- [1] Câmara, M. C.; dos Santos, A. F.; Martins, M. C., *A new approach to factorization of a class of almost-periodic triangular symbols and related Riemann-Hilbert problems*, J. Funct. Anal. 235 (2006), no. 2, 559 - 592.