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The Riemann problem on a finite-sheeted Riemann surface of infinite genus

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Abstract

Let R be the Riemann surface of the function $u(z)$ specified by the equation $u^n = P(z)$ with $n \in \mathbb{N}$, $n \geq 2$, and $z \in \mathbb{C}$, where $P(z)$ is an entire function with infinitely many simple zeros. On R , the Riemann boundary-value problem for an arbitrary piecewise smooth contour Γ is considered. Necessary and sufficient conditions for its solvability are obtained, and its explicit solution is constructed. ©2000 Kluwer Academic/Plenum Publishers.

Keywords

Cauchy kernel, Finite-sheeted Riemann surface of infinite genus, Riemann boundary-value problem