

Explicit forms for the Schwarz integrals in an annulus and their applications

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Abstract

© 2015, Pleiades Publishing, Ltd. The article presents new explicit forms of the Schwarz integral in an annulus. Some correspondence is obtained between the Fourier series for the boundary values of the Schwarz problem and the Laurent series for a regular function $f(z)$ that is the solution of the Schwarz problem. We study in detail the case of a linear-fractional function as a solution to the Schwarz problem in a disk, an annulus, and an arbitrary multiply-connected domain with an application to inverse boundary value problems.

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Keywords

Fourier series, inverse boundary value problems, Laurent series, Schwarz integral