Conjugate Function Method for Numerical Conformal Mappings

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Abstract

We present a method for numerical computation of a conformal mapping from simply or doubly connected domains onto canonical domains, a rectangle $R_h = \{z \in \mathbb{C} : 0 < \operatorname{Re} z < 1, 0 < \operatorname{Im} z < h\}$ or an annulus $A_r = \{z \in \mathbb{C} : r < |z| < 1\}$. The method is based on solving numerically the Laplace equation with Dirichlet–Neumann mixed boundary conditions. See [HRV] for details. Several examples of the algorithm are given.

References

[HQR] H. HAKULA, T. QUACH, and A. RASILA, *Conjugate function method for numerical conformal mappings*, manuscript.

[HRV] H. HAKULA, A. RASILA, and M. VUORINEN, *On moduli of rings and quadrilaterals: algorithms and experiments*. SIAM J. Sci. Comput. 33 (2011), no. 1, 279–309.

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