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On the solution of elliptic partial differential equations
on regions with corners

Kirill Serkh, Vladimir Rokhlin

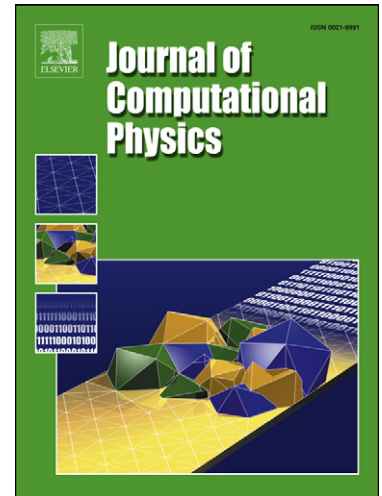
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In this paper we investigate the solution of boundary value problems on polygonal domains for elliptic partial differential equations. We observe that when the problems are formulated as the boundary integral equations of classical potential theory, the solutions are representable by series of elementary functions. In addition to being analytically perspicuous, the resulting expressions lend themselves to the construction of accurate and efficient numerical algorithms. The results are illustrated by a number of numerical examples.

Keywords: *Boundary value problems, Potential theory, Corners, Singular solutions, Elliptic partial differential equations*

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K. Serkh^{‡◊⊕*}, V. Rokhlin^{‡◊⊖},
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‡ Dept. of Mathematics, Yale University, New Haven CT 06511

* Corresponding author. Email: kirill.serkh@yale.edu

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