

Isoperimetric inequalities for L_p -norms of the stress function of a multiply connected plane domain

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Abstract

Let $u(x,G)$ be the stress function of a multiply connected plane domain G . We construct new domain functionals depending on this stress function which are isoperimetrically monotone with respect to the free parameter. A particular case of the proved result is the Payne inequality for the torsional rigidity of G . © 2013 Allerton Press, Inc.

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Keywords

Isoperimetric inequalities, Isoperimetric monotonicity, Payne inequality, Stress function, Symmetrization, Torsional rigidity