

The boundary Harnack principle on optimal domains

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Abstract. We give a short and self-contained proof of the boundary Harnack inequality for a class of domains satisfying some geometric conditions given in terms of a state function that behaves as the distance function to the boundary, is subharmonic inside the domain and satisfies some suitable estimates on the measure of its level sets. We also discuss applications of this result to some shape optimization and free-boundary problems.

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