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Quantitative isoperimetric inequalities and homeomorphisms with finite distortion

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Abstract. We prove quantitative isoperimetric inequalities for images of the unit ball under homeomorphisms of exponentially integrable distortion. We show that the metric distortions of such domains can be controlled by their Fraenkel asymmetries. An application of the quantitative isoperimetric inequality proved by Hall and Fusco, Maggi, and Pratelli then shows that for these domains a version of Bonnesen's inequality holds in all dimensions.

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