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A numerical approach for local isoperimetric partitions

We propose and study a numerical algorithm for isoperimetric partitioning problems with volume constraints. The algorithm is based on a total variation formulation to measure the perimeters of the sets, and an ADMM relaxation and FFT is used to formulate and solve the associated optimality conditions. We validate our method against known examples like the half space and sphere, before examining numerically the convergence properties. Finally, we propose several conjectures about minimizing configurations.