ISOPERIMETRIC CONES AND MINIMAL SOLUTIONS OF PARTIAL OVERDETERMINED PROBLEMS

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Abstract: In this paper we consider a partial overdetermined mixed boundary value problem in domains inside a cone as in [**18**]. We show that, in cones having an isoperimetric property, the only domains which admit a solution and which minimize a torsional energy functional are spherical sectors centered at the vertex of the cone. We also show that cones close in the $C^{1,1}$-metric to an isoperimetric one are also isoperimetric, generalizing so a result of [**1**]. This is achieved by using a characterization of constant mean curvature polar graphs in cones which improves a result of [**18**].

2010 Mathematics Subject Classification: 49Q10, 53A10, 35B06, 35N25, 74G50.

Key words: isoperimetric cones, mixed boundary value problems, constant mean curvature polar graphs, torsional rigidity problems.