Engelstein, Max; **Spolaor, Luca**; **Velichkov, Bozhidar**
(Log-)epiperimetric inequality and regularity over smooth cones for almost area-minimizing currents. (English) Zbl 1409.53013
Geom. Topol. 23, No. 1, 513-540 (2019).

Summary: We prove a new logarithmic epiperimetric inequality for multiplicity-one stationary cones with isolated singularity by flowing any given trace in the radial direction along appropriately chosen directions. In contrast to previous epiperimetric inequalities for minimal surfaces (eg work of Reifenberg, Taylor and White), we need no a priori assumptions on the structure of the cone (eg integrability). If the cone is integrable (not only through rotations), we recover the classical epiperimetric inequality. As a consequence we deduce a new regularity result for almost area-minimizing currents at singular points where at least one blowup is a multiplicity-one cone with isolated singularity. This result is similar to the one for stationary varifolds of *L. Simon* [Ann. Math. (2) 118, 525–571 (1983; Zbl 0549.35071)], but independent from it since almost-minimizers do not satisfy any equation.

MSC:

53A10   Minimal surfaces in differential geometry, surfaces with prescribed mean curvature

Cited in **3** Documents

Keywords:

regularity of minimal surfaces; epiperimetric inequality; almost area-minimizing currents

Full Text: DOI

References:

[1]   10.1512/iumj.1988.37.37012 · Zbl 0669.49023 · doi:10.1512/iumj.1988.37.37012

[2]   10.2307/2006984 · Zbl 0437.53045 · doi:10.2307/2006984

[3]   10.4007/annals.2015.182.1.5 · Zbl 1337.53082 · doi:10.4007/annals.2015.182.1.5

[4]   10.1007/s00039-018-0451-1· doi:10.1007/s00039-018-0451-1

[5]   10.1002/cpa.21690 · Zbl 1369.49062 · doi:10.1002/cpa.21690

[6]   ; Nagura, Osaka J. Math., 19, 241, (1982)

[7]   10.2307/1970488 · Zbl 0151.16701 · doi:10.2307/1970488

[8]   10.1512/iumj.1982.31.31035 · Zbl 0516.49026 · doi:10.1512/iumj.1982.31.31035

[9]   10.2307/2006981 · Zbl 0549.35071 · doi:10.2307/2006981

[10]   ; Simon, Lectures on geometric measure theory. Lectures on geometric measure theory. Proceedings of the Centre for Mathematical Analysis, Australian National University, 3, (1983)

[11]   10.1007/BF01392299 · Zbl 0278.49046 · doi:10.1007/BF01392299

[12]   10.2307/1970950 · Zbl 0335.49033 · doi:10.2307/1970950

[13]   10.1215/S0012-7094-83-05005-6 · Zbl 0538.49030 · doi:10.1215/S0012-7094-83-05005-6