

**(LOG-)EPIPERIMETRIC INEQUALITY AND REGULARITY AT
ISOLATED SINGULARITIES FOR ALMOST AREA-MINIMIZING
CURRENTS**

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The uniqueness of blow-up and regularity of multiplicity-one minimal surfaces at isolated singularities has been successfully investigated by Allard-Almgren [Ann. of Math. '81], in the integrable case, and by L. Simon [Ann. of Math. '83], in its full generality.

In this talk I will present a simple and completely variational approach to this problem, achieved by proving a new logarithmic epiperimetric inequality for multiplicity-one stationary cones with isolated singularity. In contrast to classical epiperimetric inequalities by Reifenberg [Ann. of Math. '64], Taylor [Invent. Math. '73, Ann. of Math. '76] and White [Duke '83], we require no a priori assumptions on the structure of the cone (e.g. integrability). If the cone is integrable (not only through rotations), we recover the classical epiperimetric inequality. Epiperimetric inequalities of logarithmic type were first introduced by M.Colombo, B. Velichkov and myself in the context of the obstacle and thin-obstacle problems.

As a consequence of our analysis we give a new proof of Allard-Almgren and Simon results in the case of minimizers and we deduce a new epsilon-regularity result for almost area-minimizing currents at isolated singularities.

This is joint work with M. Engelstein (MIT) and B. Velichkov (Grenoble).