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*On the Alexandrov's estimate*

A classical fact due to Alexandrov states that if  $\Omega$  is a bounded open convex domain in  $\mathbb{R}^n$ , and  $u : \bar{\Omega} \rightarrow \mathbb{R}$  is a convex function such that  $u = 0$  on  $\partial\Omega$ , then

$$[u]_{1/n}^n \leq C(\Omega)|\partial u(\Omega)|.$$

Here  $\partial u$  denotes the subgradient of  $u$ . The estimate is not only crucial to regularity theory of the Monge-Ampere equation, but also main tool in some linear elliptic PDE estimates. In this talk, will discuss some extensions and refinements of the estimate using the geometry of  $\partial\Omega$ . This is a joint work with Charles Griffin and Robert L. Jerrard (University of Toronto).