

1154-49-2535

Brian Krummel* (bkrummel@purdue.edu), Department of Mathematics, 150 N. University Street, West Lafayette, IN 47906. *Relative isoperimetric inequality outside a convex set.*

We consider a higher codimension isoperimetric inequality for an $(m + 1)$ -dimensional area minimizing submanifold R which lies outside a convex subset K of \mathbb{R}^{n+1} and is bounded by an m -dimensional submanifold T and a free boundary along the convex set K . We show that the isoperimetric ratio is greater than or equal to that of an $(m + 1)$ -dimensional flat half-disk. A key aspect of our approach is obtaining estimates showing that when the isoperimetric ratio of R is close the least value of the isoperimetric ratio, then the mass of T and R cannot concentrate along K . This extends prior work of Choe, Ghomi, and Ritore in the case $m = n$ and proves a conjecture of Choe in the case of relative area minimizers. (Received September 17, 2019)