

Relative Isoperimetric Inequality on a Curved Surface

Keomkyo Seo (Seoul National University)

Let C be a convex domain on a surface S whose Gaussian curvature is bounded above by a constant K . For a domain $\Omega \subset S \sim C$, we obtain the sharp relative isoperimetric inequality $2\pi Area(\Omega) - K Area(\Omega)^2 \leq Length(\partial\Omega \sim \partial C)^2$. And we get the sharp relative Sobolev inequality $2\pi \int_{S \sim C} f^2 dA - K(\int_{S \sim C} |f| dA)^2 \leq (\int_{S \sim C} \|\nabla f\| dA)^2$, for any relatively compactly supported function f of bounded variation on $S \sim C$.