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**Mohammad Ghomi**, Georgia Institute of Technology, School of Mathematics, Atlanta, GA 30332, and **Ralph Howard\***, University of South Carolina, Department of Mathematics, Columbia, SC 29208. *Total diameter and area of closed submanifolds.*

The *total diameter* of a closed planar curve  $C$  is the integral its antipodal chord lengths. We show this quantity is bounded below by twice the area enclosed by the curve. Furthermore, when the curve is convex or centrally symmetric, the lower bound is twice as large. Both inequalities are sharp and equality holds in the convex case only when the curve is a circle. We generalize these results to the case of  $m$  dimensional submanifolds of Euclidean  $n$  space where the enclosed *area* is defined in terms of the mod 2 winding numbers of the submanifold about  $n - m - 1$  affine subspaces. (Received January 20, 2015)