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Abstract:	This dissertation is an exposition of isoperimetric inequality in various spaces with a focus on the evolution of techniques as we explore it in more general spaces. We first focus on differential geometric arguments for Euclidean space hyper-surfaces and review the uniqueness of the solution to C2 isoperimetric problem and uniqueness of extremal of C2 isoperimetric functional. We look into convex bodies in R next and review the popular theorem "Brunn-Minkowski theorem" using convex geometry techniques. From this theorem, as a corollary, isoperimetric inequality for the convex body is proved We also discuss Isoperimetric inequality for graphs and for 2k-regular graphs, analyze how it relates with the problem of bounding the second eigenvalue.
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