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Lei Ni* (lني@math.ucsd.edu), 9500 Gilman Drive, Department of Mathematics, UC at San Diego, La Jolla, CA 92093. *Gap theorems on Kaehler manifolds.*

A gap theorem concerns, when the curvature of a complete noncompact Riemannian manifold has a sign, what amount of curvature is needed to ensure that the metric is non-trivial (namely nonflat in this case).

In this talk I shall survey on different versions of gap theorems with one started in 1977. The focus shall be placed on various new techniques developed, most often motivated by the study of other subjects in geometric analysis such as the functions of several complex variables, the vanishing theorems in complex geometry, the nonlinear evolution equation including the Ricci flow on complete manifolds, etc, with the goal of proving the sharp results. (Received August 01, 2011)