

Geometry of Hermitian manifolds

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On Hermitian manifolds, the second Ricci curvature tensors of various metric connections are closely related to the geometry of Hermitian manifolds. By refining the Bochner formulas for any Hermitian complex vector bundle (Riemannian real vector bundle) with an arbitrary metric connection over a compact Hermitian manifold, we can derive various vanishing theorems for Hermitian manifolds and complex vector bundles by the second Ricci curvature tensors. We will also introduce a natural geometric flow on Hermitian manifolds by using the second Ricci curvature tensor.

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