On the holomorphic pseudosymmetry of Kähler manifolds

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The holomorphic pseudosymmetry is a natural generalization of the semisymmetry, in particular, the local symmetry.

A Kähler manifold $M(J,g)$ is said to be holomorphically pseudosymmetric if its Riemann curvature R satisfies the condition

$$R \cdot R = f\,\tilde{R} \cdot R,$$

where f is a certain function on M and $\tilde{R}$ is the derivation of the tensor algebra generated by the curvature type endomorphism

$$\tilde{R}(X,Y) = X \wedge Y + (JX) \wedge (JY) - 2g(JX,Y)J.$$

Basing on the Lichnerowicz's integral formulas, we can investigate the holomorphic pseudosymmetry of compact Kähler manifolds. The main result is the following:

Let M be a compact Kähler manifold with constant scalar curvature. If M is holomorphically pseudosymmetric with $f \geq 0$, then it is locally symmetric.