Some vanishing theorems of sufficient character about holomorphically projective mappings of Kahlerian spaces on the whole

Helena Sinyukova  
(State institution «South Ukrainian National Pedagogical University named after K. D. Ushinsky») 
E-mail: olachepok@ukr.net

The generalized Bochner technique (see, for example, [1]) allows to broaden to the noncompact but compete Kahlerian spaces some well-known theorems of holomorphically projective unique definability that have been proved previously only to the compact ones (see, for example, [2]). In particular, the next statements are true.

Theorem 1. Complete connected Kahlerian $C^r$-spaces $K^n$ ($n > 2$, $r > 3$) with positive definite Ricci form don’t admit non-trivial (different from affine) holomorphically projective mappings on the whole.

Corollary 2. Complete connected Kahlerian $C^r$-spaces $K^n$ ($n > 2$, $r > 3$) that have sign-definite metric form sign of which coincides with the sign of scalar curvature don’t admit non-trivial (different from affine) holomorphically projective mappings on the whole.

Corollary 3. Complete connected Kahlerian $C^r$-spaces $K^n$ ($n > 2$, $r > 3$) that have positively definite metric form and non-positively definite on the set of symmetric tensors $b^{ij}$ form

$$R_{\alpha\gamma\sigma\beta}b^{\alpha\beta}b^{\gamma\sigma}$$

don’t admit non-trivial (different from affine) holomorphically projective mappings on the whole.

Examples of Kahlerian spaces of considered types are known. In particular, complete connected Kahlerian $C^r$-spaces $K^n$ ($n > 2$, $r > 3$) of constant non-positive holomorphic curvature with positively definite metric form satisfies conditions of the both corollaries.

References
