On some aspects of vanishing theorems of global character about holomorphically projective mappings of complete Kahlerian spaces

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Generalization of Bochner's technique (see, for example, [1]) allows to extend to noncompact but complete Kahlerian spaces a number of theorems of holomorphically projective unique definability on the whole that have been proved previously only to the compact ones (see, for example, [2]). In particular, the next theorems are true.

Theorem 1. *Complete connected Kahlerian C^r-space K^n $(n > 2,\ r > 2)$ with positive defined metric form and non-negatively defined on the set of symmetric tensors b^{ij} form*

$$T_{\alpha\gamma\sigma\beta} b^{\alpha\beta} b^{\gamma\sigma} \qquad\qquad (T_{\alpha\gamma\sigma\beta} = g_{\gamma\beta} R_{\alpha\sigma} - R_{\alpha\gamma\sigma\beta})$$

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

Theorem 2. *Complete connected Kahlerian C^r-space K^n $(n > 2,\ r > 4)$ with strictly defined form*

$$(2R^{\gamma}_{\alpha,\beta\gamma} - 3R_{\alpha\beta,\cdot\gamma}{}^{\gamma})\eta^{\alpha}\eta^{\beta}$$

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

Theorem 3. *Complete connected Kahlerian C^r-space K^n $(n > 2,\ r > 4)$ with strictly defined form $R^{i\alpha}_{\cdot\cdot}{}_{,}{}^{\beta}_{\cdot\, i}\eta^{\alpha}\eta^{\beta}$ doesn't admit non-trivial (different from the affine) holomorphically projective mappings on the whole.*

Examples of Kahlerian spaces of considered types are pointed out.

References

[1] Pigola S., Rigoli M., Setti A.G. *Vanishing in finitness results in geometric analysis.* in *A Generalization of the Bochner Technique.*, Berlin: Birkhauser Varlag AG, 2008

[2] Sinyukova, H.N. On some classes of holomorphically-projectively uniquely defined Kahlerian spaces on the whole, *Proc. Intern. Geom. Center*, 3(4) : 15–24, 2010.