On holomorphically projective mappings of parabolic Kähler manifolds

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We study with H. Chudá, J. Mikeš, and M. Shiha fundamental equations of holomorphically projective mappings of parabolic Kähler spaces (which are generalized classical, pseudo- and hyperbolic Kähler spaces) with respect to the smoothness class of metrics, see [**?**,**?**]. We show that *holomorphically projective mappings preserve the smoothness class of metrics*.

We remind, that an n-dimensional (pseudo-) Riemannian manifold (M, g) is called an *m-parabolic Kähler manifold*, if beside the metric tensor g, a tensor field F of a rank $m > 1$ of type $(1, 1)$ is given on the manifold M_n, such that the following conditions hold: $F^2 = 0$, $g(X, FX) = 0$, $\nabla F = 0$, where X is an arbitrary tangent vector, ∇ denotes the covariant derivative.

[1] Shiha M. On the theory of holomorphically-projective mappings of parabolically-Kählerian spaces. Opava: Math. Publ. 1993; 1: 157-160.

[2] Mikeš J. at al. Differential geometry of special mappings. Palacky University Press, Olomouc. 2015.