On various types of generalized Kählerian spaces

Mića S. Stanković
Faculty of Sciences and Mathematics, University of Niš, Serbia
mica.stankovic@pmf.edu.rs

Kählerian spaces admit several natural generalizations. One of them is obtained by replacing the symmetric metric tensor with a non-symmetric one [1] and requiring the almost complex structure to be parallel with respect to two kinds of covariant differentiation [2].

An even more general setting is obtained by assuming that the metric tensor remains non-symmetric, while the almost complex structure is parallel with respect to only one kind of covariant differentiation [3, 4].

In this talk, we will discuss further generalizations of Kählerian spaces in the sense of Eisenhart, focusing on various kinds of generalized Kählerian spaces. We will present their defining geometric properties and discuss selected results concerning equitorsion holomorphically projective mappings in these spaces. Particular attention will be paid to the role of different kinds of covariant differentiation in the formulation and investigation of these mappings.

Acknowledgements

Joint work with Vladislava M. Milenković.

Supported by the grant provided by the Ministry of Science, Technological Development and Innovation of Serbia, 451-03-34/2026-03/200124.

References

[1] M. Prvanović, *Four curvature tensors of non-symmetric affine connexion*, Proceedings of the Conference "150 Years of Lobachevski Geometry", Kazan, (1976), Moscow (1997), 199–205.

[2] M. S. Stanković, S. M. Minčić, Lj. S. Velimirović, *On equitorsion holomorphically projective mappings of generalized Kählerian spaces*, Czechoslovak Mathematical Journal, **54**(129), (2004), 701–715.

[3] M. S. Stanković, Lj. M. Zlatanović, Lj. S. Velimirović, *On equitorsion holomorphically projective mappings of generalized Kählerian spaces of the first kind*, Czechoslovak Mathematical Journal, **60**(3), (2010), 635–653.

[4] M. S., Stanković, Lj. M. Zlatanović, Lj. S. Velimirović, *On equitorsion holomorphically projective mappings of generalized Kählerian spaces of the second kind*, International Electronic Journal of Geometry, **3**(2), (2010), 26–39.