Nilpotent Lie algebras with special Hermitian structure

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Abstract.

We consider a class of Hermitian structures on complex manifolds, recently introduced in [3] and called *k-th Gauduchon* structures, which are a generalization of the well-known Gauduchon metrics [4]. The class of 1-st Gauduchon structures includes the *strong Kähler with torsion* (*SKT* for short) class consisting of those Hermitian structures for which the associated fundamental form is $\partial\bar{\partial}$-closed. It is proved in [1] that if a (non abelian) nilpotent Lie algebra $\mathfrak{g}$ has an SKT metric then the step of nilpotency of $\mathfrak{g}$ is 2. In [2] it is proved that in dimension 6 any 1-st Gauduchon metric on $\mathfrak{g}$ is necessarily SKT, and in this talk we focus on these Hermitian structures on higher dimensional nilpotent Lie algebras.

References

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