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***Workshop*: "Moduli spaces and their invariants in mathematical physics"**
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Hermitian-Einstein connections on balanced HKT manifolds

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A Hermitian metric g on an n-dimensional complex manifold is called balanced if its fundamental form ω satisfies $d\omega^{n-1} = 0$. A hyper-Hermitian manifold (M, I, J, K, g) is said to be HKT (hyper-Kähler with torsion) if the associated $(2, 0)$-form Ω on (M, I) is ∂-closed. In this talk, we examine the geometry of Hermitian–Einstein connections on balanced HKT manifolds. We will in particular see that, under some natural conditions on the Chern classes, their moduli spaces are hyper-Kähler spaces.

This is joint work with Misha Verbitsky.

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