

Non-Kähler Hodge–Lefschetz theory and the Bianchi identity

Friday, 10 October 2025 11:00 (1 hour)

Being Kähler imposes severe constraints on the cohomology of compact complex manifolds such as the Hard Lefschetz property, and the question of how far this generalises beyond the class of Kähler manifolds has been of great interest for a while. In this talk, I shall report on ongoing joint work with Mario García Fernández and Raúl González Molina that abstracts out the definition of a variation of Hodge–Lefschetz structure and provides evidence that, under certain natural assumptions, such a structure exists more generally on distinguished subspaces within moduli spaces of Bismut–Ricci-flat metrics that are pluriclosed up to source terms. In particular, these distinguished subspaces may be regarded as replacements for the Kähler cone, with affine structure modelled on a subspace of the $(1,1)$ Aeppli cohomology of the compact complex manifold.

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