Old and new constructions in non-Kähler geometry

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Abstract: Examples of compact complex non-Kähler manifolds are numerous and linked to diverse areas of research. Little is known however about their Hermitian geometry.
We present two classes of compact complex non-Kähler manifolds and display a global picture of the special Hermitian metrics they support.
The first one is a class of Kato manifolds for which we give a new interpretation arising from toric geometry and prove they provide interesting new examples of locally conformally Kähler metrics.
The second one is a construction of Oeljeklaus and Toma linked to number theory and intensively studied in locally conformally Kähler geometry. We change the scenery in this talk and present how this latter class produces new examples of pluriclosed metrics.
Part of the talk is based on a joint work with Nicolina Istrati, Massimiliano Pontecorvo and Matteo Ruggiero.