Geometry of Kato manifolds

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Kato manifolds are compact complex manifolds containing a global spherical shell. Their modern study has been widely carried out in complex dimension 2 and originates in the seminal work of Inoue, Kato, Nakamura and Hirzebruch.

In this talk I plan to describe a special class of Kato manifolds in arbitrary complex dimension, whose construction arises from toric geometry. I will present several of their analytic and geometric properties, including existence of special complex submanifolds and partial results on their Dolbeault cohomology. Moreover, since they are compact complex manifolds of non-Kähler type, I will investigate what special Hermitian metrics they support.