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Holomorphic Poisson Structures and Generalized Kähler Metrics

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Since the introduction of generalized Kähler geometry in 1984 by Gates, Hull, and Rocek in the context of two-dimensional supersymmetric sigma models, we have lacked an understanding of the degrees of freedom inherent in the geometry. In particular, the description of a usual Kähler structure in terms of a complex manifold together with a local Kähler potential function is not available for generalized Kähler structures, despite many positive indications in the literature over the last decade. I will explain how holomorphic Poisson geometry may be used to solve this problem and to obtain new constructions of generalized Kähler metrics.

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