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Holomorphic Riemannian metrics on compact complex 3-manifolds.

A holomorphic Riemannian metric is simply defined as a complex version of Riemannian metrics, with everything holomorphic. However, a few compact complex manifolds possess such metrics. As an example, we have the holomorphic flat Euclidean space \mathbf{C}^3 , endowed with the metric $dz_1^2 + dz_2^2 + dz_3^2$. Similarly, there exists a 3-dimensional space of constant non-vanishing curvature. There are compact manifolds, e.g. torii in the flat case, modeled on these geometries. In this joint work with S. Dumitrescu, we prove a uniformization result, essentially, any compact complex manifold having a holomorphic Riemannian metric (with no a priori homogeneity hypothesis) has one with a constant curvature. (Received September 18, 2007)