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**Interactions between almost-complex
and Riemannian geometries through
Curvature**

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Abstract: The aim of this talk is to explain how Riemannian metrics with prescribed curvature can be used to investigate the (non-)existence of complex structures. I will start by reviewing the classical obstruction theory for the integrability of G -structures, of which almost-complex structures are a special case. I will also try to recast G -structures in the Cartan framework. Next, I will survey some of the literature on non-existent hermitian structures. And I will conclude with a discussion on curvature obstruction equations to the integrability of almost-complex structures that are essentially higher order covariant exterior derivatives of the Nijenhuis tensor. These equations could be used to recover well-known results on the non-existence of orthogonal complex structures, and to generalize these results in new directions. The obstruction equations give a way of probing the almost-complex geometry of manifolds admitting Riemannian metrics with bounded curvature.

