

ABSTRACT:

A consequence of the famous Gauß-Bonnet theorem is the existence of “spherical geometry”, that is, the natural geometry on the sphere is (even locally) not equivalent to the flat geometry of the Euclidean plane. In fact, the uniformisation theorem yields a classification scheme for compact Riemann surfaces which distinguishes between spherical, flat and hyperbolic geometry. In the quest for a yet unknown higher dimensional classification scheme, the so-called Einstein condition, which originated in general relativity, plays an important rôle. In this talk I want to explain this condition and related results. In particular, I will discuss the relationship with metrics of special holonomy.