Martin NIEPEL

Symplectic 4-manifolds with positive signature

Abstract. Simply connected topological 4-manifolds with nondefinite intersection form Q are uniquely determined by Euler characteristic e, signature σ and the parity of the intersection form Q. It is interesting to ask for which combinations $(e, \sigma, spin)$ there exists a topological manifold admitting symplectic structure, or how many distinct structures there are. In this talk we address the *geography problem* of symplectic 4-manifolds, especially in the regions with small Euler characteristic, or close to the Bogomolov-Miyaoka-Yau line. We present brief description of the constructions of our examples and techniques which allow us to obtain infinitely many different symplectic structures in a given homeomorphism type.