Oberseminar Geometrie und Topologie

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(Almost) complex geometry of G2 flag manifolds

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Abstract: Flag manifolds are a class of homogeneous spaces which carry particularly interesting invariant geometric structures, such as a complex structure which admits a compatible Kähler-Einstein metric. These invariant geometric structures are typically studied using Lie-theoretic methods, and are well-understood from this point of view. However, such algebraic methods shed little light on their geometric origin.

In this talk, we will take a complementary approach, discussing some examples from a differential-topological angle. Besides recovering results typically obtained using Lie theory, we will see that this more geometric approach reveals connections to a number of interesting topics in (almost) complex geometry, such as rigidity theorems for Kählerian complex structures, and twistor theory for quaternionic Kähler manifolds.

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