

Chern's conjecture for special affine manifolds

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Abstract

An affine manifold X in the sense of differential geometry is a differentiable manifold admitting an atlas of charts with value in an affine space, with locally constant affine change of coordinates. Equivalently, it is a manifold whose tangent bundle admits a flat torsion free connection. Around 1955 Chern conjectured that the Euler characteristic of any compact affine manifold has to vanish. I will explain a proof of this conjecture in the case where X moreover admits a parallel volume form.