



Geometry Webinar AmSur/AmSul

Homogeneous Hermitian manifolds revisited

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Resumo: Starting from a flag manifold $F=G/H$ (the only compact homogeneous manifolds which are Kähler), each of the countable many closed tori T in the center $Z(H)$ of even codimension defines a torus bundle $M=G/K$ over F with fibre $A=Z(H)/T$, where $K=[H,H]\times T$. The different slopes of T in $Z(H)$ may or may not have topological consequences on M . These so-called C-spaces $M=G/K$ are precisely the compact homogeneous spaces admitting invariant complex structures, which are all given by one of the finitely many complex structures on F and any left-invariant complex structure on the torus A , i.e., any linear map J_a on the Lie algebra $\mathfrak{a}$ of A whose square is $-I$. The freedom to choose J_a is overwhelming. In this talk, we will show that the existence of distinguished Hermitian metrics like Hermite-Einstein, balanced, SKT, CYT, Chern-Einstein, etc., can be very sensitive to such a choice.