



UNIVERSIDADE FEDERAL DE ALAGOAS  
INSTITUTO DE MATEMÁTICA  
PROGRAMA DE VERÃO DO PPGMAT-UFAL



## Seminário de Geometria Diferencial & Análise Geométrica

**Título:** Sobre a estrutura de variedades kahlerianas completas munidas com campos conformes fechados

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**Resumo:** We show that if a connected compact Kählerian surface with nonpositive gaussian curvature is furnished with a closed conformal vector field whose singular points are isolated, then the surface is isometric to a flat torus and the vector field is parallel. We also consider the case of a connected complete Kählerian manifold  $M$  of complex dimension  $n > 1$  and furnished with a nontrivial closed conformal vector field  $X$ . In this case, it is well known that the singularities of such a vector field are automatically isolated, and the nontrivial leaves of the distribution generated by  $X$  and  $JX$  are totally geodesic in  $M$ . Assuming that one such leaf is compact, has torsion normal holonomy group and that the holomorphic sectional curvature of  $M$  along it is nonpositive, we show that  $X$  is parallel and  $M$  is foliated by a family of totally geodesic isometric tori and also by a family of totally geodesic isometric complete Kählerian manifolds of complex dimension  $n - 1$ . In particular, the universal covering of  $M$  is isometric to a riemannian product having  $\mathbb{R}^2$  as a factor. Finally, we present an example of a generic class of compact complex symmetric spaces that do not possess nontrivial closed conformal vector fields, thus showing that we cannot get rid of the hypothesis on the nonpositivity of the holomorphic sectional curvature in the direction of  $X$ .

**Local:** Sala da Pós-Graduação - IM/UFAL

**Data:** Dia 26/01/2018

**Hora:** 10h00