



Instituto Universitario de Investigación
de Matemáticas
y Aplicaciones
Universidad Zaragoza



Departamento de
Matemáticas
Universidad Zaragoza

Seminario Geometría y Topología

Conferencia

por

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Título:

“Adiabatic Limit and Deformations of Complex Structures”

RESUMEN:

Based on our recent adaptation of the adiabatic limit construction to the case of complex structures, we give a new proof of the fact, that we first proved in 2009 and 2010, that the deformation limiting manifold of any holomorphic family of Moishezon manifolds is Moishezon. Two new ingredients, hopefully of independent interest, are introduced. The first one canonically associates with every compact complex manifold X , in every degree k , a holomorphic vector bundle over \mathbb{C} of rank equal to the k -th Betti number of X . This vector bundle shows that the degenerating page of the Frölicher spectral sequence of X is the holomorphic limit, as h in \mathbb{C}^* tends to 0, of the d_h -cohomology of X . A relative version of this vector bundle is canonically associated with every holomorphic family of compact complex manifolds. The second new ingredient is a relaxation of the notion of strongly Gauduchon (sG) metric that we introduced in 2009. For a given positive integer r , a Gauduchon metric γ on an n -dimensional compact complex manifold X is said to be E_r -sG if $\partial \bar{\partial} \gamma^{n-1}$ represents the zero cohomology class on the r -th page of the Frölicher spectral sequence of X . Strongly Gauduchon metrics coincide with E_1 -sG metrics.

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