Seminario de Geometría y Topología

UNIVERSIDAD COMPLUTENSE MADRID

Formality of Kähler orbifolds and Sasakian manifolds

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Abstract: We prove that compact Kähler orbifolds are formal, and derive applications of it to the topology of compact Sasakian manifolds. In particular, answering questions raised by Boyer and Galicki, we prove that all higher Massey products on any simply connected Sasakian manifold vanish. Hence, higher Massey products do obstruct Sasakian structures. Using this we produce a method of constructing simply connected K-contact non-Sasakian manifolds.

On the other hand, for every n>2 we exhibit the first examples of simply connected compact regular Sasakian manifolds of dimension 2n+1 which are non-formal. They are non-formal because they have a non-zero triple Massey product. (Joint work with I. Biswas, M. Fernández and A. Tralle).

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