Mathematics > Algebraic Geometry

Stable Higgs bundles on compact Gauduchon manifolds

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(Submitted on 15 Nov 2010)

Let M be a compact complex manifold equipped with a Gauduchon metric. If TM is holomorphically trivial, and (V, \theta) is a stable SL(r, {\mathbb C})-Higgs bundle on M, then we show that $\theta= 0$. We show that the correspondence between Higgs bundles and representations of the fundamental group for a compact Kaehler manifold does not extend to compact Gauduchon manifolds. This is done by applying the above result to G/\Gamma, where Γ is a discrete torsionfree cocompact subgroup of a complex semisimple group G.

Comments:	Comptes Rendus Mathematique (to appear)
Subjects:	**Algebraic Geometry (math.AG)**
MSC classes:	53C07, 32L05
Cite as:	**arXiv:1011.3353v1 [math.AG]**

Submission history

From: Indranil Biswas [view email]
[v1] Mon, 15 Nov 2010 12:11:20 GMT (6kb)

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