High Energy Physics - Theory

Emergent Noncommutative gravity from a consistent deformation of gauge theory

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(Submitted on 23 Jan 2010 (v1), last revised 12 Feb 2010 (this version, v2))

Starting from a standard noncommutative gauge theory and using the Seiberg-Witten map we propose a new version of a noncommutative gravity. We use consistent deformation theory starting from a free gauge action and gauging a killing symmetry of the background metric to construct a deformation of the gauge theory that we can relate with gravity. The result of this consistent deformation of the gauge theory is nonpolynomial in A_μ. From here we can construct a version of noncommutative gravity that is simpler than previous attempts. Our proposal is consistent and is not plagued with the problems of other approaches like twist symmetries or gauging other groups.

Comments:	17 pages, references added, typos fixed, some concepts clarified
Subjects:	**High Energy Physics - Theory (hep-th)**; General Relativity and Quantum Cosmology (gr-qc); Mathematical Physics (math-ph)
Cite as:	**arXiv:1001.4180v2 [hep-th]**

Submission history

From: J. Antonio Garcia Zenteno [view email]
[v1] Sat, 23 Jan 2010 18:55:17 GMT (14kb)
[v2] Fri, 12 Feb 2010 18:21:08 GMT (15kb)

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