Mathematical Physics

Geometrically relating momentum cut-off and dimensional regularization

Susama Agarwala

(Submitted on 27 Jul 2011 (v1), last revised 19 Nov 2012 (this version, v2))

The β function for a scalar field theory describes the dependence of the coupling constant on the renormalization mass scale. This dependence is affected by the choice of regularization scheme. I explicitly relate the β-functions of momentum cut-off regularization and dimensional regularization on scalar field theories by a gauge transformation using the Hopf algebras of the Feynman diagrams of the theories.

Comments:	As submitted to IJGMMP; International Journal of Geometric Methods in Mathematical Physics, 2013, Volume 10, Number 2
Subjects:	**Mathematical Physics (math-ph)**
MSC classes:	81R50, 16T05
DOI:	10.1142/S0219887812500818
Cite as:	**arXiv:1107.5533 [math-ph]**
	(or **arXiv:1107.5533v2 [math-ph]** for this version)

Submission history

From: Susama Agarwala [view email]
[v1] Wed, 27 Jul 2011 16:48:51 GMT (15kb)
[v2] Mon, 19 Nov 2012 15:39:19 GMT (19kb)

Which authors of this paper are endorsers?