

Im Oberseminar

Deformationsquantisierung

spricht am **16. 11. 2018 um 14 Uhr c.t.**,

im Seminarraum 00.009 (Physik Ost)

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über das Thema:

Twisted Cartan calculus on smooth submanifolds

If a Lie algebra acts on a smooth manifold by derivations one can use a Drinfel'd twist on the universal enveloping algebra to obtain a deformation quantization of the manifold. In particular the corresponding star product can be expressed in terms of the twist and the action. In this talk I want to extend this idea by not only twist deforming the pointwise product of functions but also the Lie derivative, the insertion derivation, the wedge product and the Lie bracket of vector fields. The deformed structures form a braided Cartan calculus, generalizing the classical Cartan calculus known from differential geometry. Similarly one achieves a twist deformation of the Gerstenhaber algebra structure of multivector fields. Moreover, twist deformed covariant derivatives are treated and I explain why they are the correct notion of covariant derivatives for the twisted Cartan calculus. Afterwards I discuss under which conditions the twisted structures project to smooth submanifolds and I prove that twist deformation and projection commute in those cases. As an example, explicit twist deformation of quadric surfaces is presented. The results are part of joint work with Gaetano Fiore, extending previous works of Paolo Aschieri, Peter Schupp et al.

gez. Stefan Waldmann