Announcement

Seminar on Deformation Quantization

22. 10. 2021 at 2PM CEST

Hybrid Seminar in SE 30 and

`https://uni-wuerzburg.zoom.us/j/92529190594?pwd=WkJvR1o1QUdldUNSSjFJbHB4c0Z0dz09`

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Strict deformation quantizations of polynomial Poisson structures

After Kontsevich's general existence result for formal star products of Poisson manifolds, the convergence of formal star products is an essential but nontrivial next step in the deformation quantization programme. In this talk I will present a combinatorial approach to the quantization of polynomial Poisson structures on $\mathbb{R}^d$ which can be used to obtain star products converging on polynomials. The construction uses the natural L_∞ algebra structure on multi-vector fields obtained by homotopy transfer from the DG Lie algebra structure on the Hochschild complex and Maurer-Cartan elements can be viewed as a systematic way of deforming the commutativity relations of the polynomial algebra. The associated "combinatorial" star product is closely related to the Gutt star product and it admits a graphical description resembling the graphical description of Kontsevich's universal formula. Finally, I will give some examples to illustrate how this star product can be used to obtain strict deformation quantizations of nonlinear Poisson structures by applying a general framework developed by Stefan Waldmann.

This talk will be based on arXiv:2002.10001 joint with Zhengfang Wang and on work in progress joint with Philipp Schmitt.

Invited by Stefan Waldmann