

## **A combinatorial approach to deformation quantization.**

**Severin Barmeier (Universität de Köln, Cologne)**

**Abstract:** I will present a combinatorial approach to the deformation quantization problem of polynomial Poisson structures on  $\mathbb{R}^d$  which relies on a systematic method for deforming the commutativity relations in the polynomial algebra. The resulting combinatorial star product admits a graphical description via bidifferential operators associated to certain graphs, which is very similar to Kontsevich's universal formula, but does not need any weights. Moreover, the formula for the combinatorial star product can often be computed explicitly, allowing one to prove convergence and continuity results which can be used to produce strict deformation quantizations, where the formal deformation parameter corresponding to Planck's constant has been evaluated to a constant. This talk will be based on arXiv:2002.10001 joint with Zhengfang Wang and work in progress joint with Philipp Schmitt.