Announcement

# Seminar on Deformation Quantization

**21. 7. 2023 at 2pm CEST**

Seminarroom SE 30

## Christopher Rudolph

## The Recuction Scheme for Star Products on Cotangent Bundles by Niels Kowalzig, Nikolai Neumaier and Markus J. Pflaum

In this talk we recall a method to construct star products on Marsden-Weinstein reductions of classical phase spaces introduced by Kowalzig, Neumaier and Pflaum in 2005. Starting with a smooth, proper and free action $\Phi$ of a Lie group $G$ on a smooth manifold $Q$ one considers the case, where the reduction of $T^*Q$ with respect to the action given by the cotangent lift of $\Phi$ is symplectomorphic to $\left(T^*(Q/G), \omega_0\right)$. Viewing $Q$ as a principal $G$-bundle over $Q/G$ and choosing a certain connection one-form one obtains an isomorphism between the formal power series of smooth functions on $T^*(Q/G)$ polynomial in the momenta and the formal power series of horizontal $G$-invariant polynomial functions on $T^*Q$. In particular, given a star product on $T^*Q$ its projection on formal power series of horizontal $G$-invariant polynomial functions induces a star product on $T^*(Q/G)$ via pull-back.

Invited by Stefan Waldmann