



Leibniz  
Universität  
Hannover

**Oberseminar Analysis und Theoretische Physik**

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## **Weakly parametric pseudodifferential calculus on Heisenberg modules**

For the study of noncommutative tori in noncommutative geometry, Heisenberg modules are the objects which can be seen as the counterparts of the vector bundles over elliptic curves. There is a pseudodifferential calculus on Heisenberg modules introduced by Lesch-Moscovici.

Meanwhile, on vector bundles over compact manifolds, the essential part in the construction of the noncommutative residue trace, the unique trace on the algebra of integer order pseudodifferential operators, is the derivation of the asymptotic expansion of the resolvent trace of an elliptic operator. This asymptotic expansion can be derived by using Grubb-Seeley's weakly parametric pseudodifferential calculus. In order to pave the way to construct the analogue of the noncommutative residue trace on the algebra of pseudodifferential operators on Heisenberg modules, it would be desirable to construct an analogue of weakly parametric pseudodifferential calculus and derive the asymptotic expansion of the resolvent trace of elliptic operators. In this talk, I will give an overview of these constructions.

Based on joint work with M. Lesch.

**Dienstag, 12.07.2022, 15:00 Uhr, Raum c311  
Hauptgebäude der Leibniz Universität**

Dazu laden herzlich ein:

Prof. Dr. Wolfram Bauer, Prof. Dr. Joachim Escher, Prof. Dr. Johannes Lankeit,  
Prof. Dr. Elmar Schrohe, Prof. Dr. Christoph Walker