Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

MUΦX
Lehrstuhl

Im Oberseminar

Deformationsquantisierung

spricht am **9. 3. 2018 um 10 Uhr c.t.,**

im Seminarraum 00.009 (Physik Ost)

Francesca Arici (Leipzig)

über das Thema:

A NCG approach to quantum lattice gauge theories and their continuum limit

We will describe the quantization of gauge theories on a graph in terms of their algebras of observables and of the Hilbert space on which the algebra is represented. The algebra of observables for the quantum system admits a natural geometric realization as a groupoid C*-algebra. I will describe the behaviour of such algebras under lattice refinements and the resulting continuum and infinite volume limit of the theory.

Based on joint work with R. Stienstra and W. van Suijlekom.

um 14 Uhr c.t.

im Seminarraum 00.009 (Physik Ost)

Gandalf Lechner (Cardiff)

über das Thema:

Yang-Baxter characters of the infinite symmetric group and subfactors

The Yang-Baxter equation (YBE) is a nonlinear matrix equation that lies at the heart of many subjects, including quantum statistical mechanics, integrable quantum field theory, knot theory, braid groups, subfactors, quantum groups, quantum information ... Due to the nonlinearity and noncommutativity of the YBE, its solutions are notoriously difficult to obtain. In this talk, I will consider involutive solutions R of the YBE ("R-matrices", satisfying $R^2 = 1$) and present a complete classification in any dimension. The upshot of this classification is that any involutive R-matrix defines a representation and an extremal character of the infinite symmetric group as well as a corresponding tower of inclusions of von Neumann algebras. Using these structures, I will describe how to find all R-matrices up to a natural notion of equivalence inherited from applications in QFT (given by the character and the dimension), how to completely parameterize the set of solutions, and how to decide efficiently whether two given R-matrices are equivalent. Time permitting, I will also indicate how these results carry over to q-deformed R-matrices which are no longer involutive.