Fakultät für Physik
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E I N L A D U N G

im Rahmen Literaturseminars

zum Vortrag

von

Igor Kanatchikov

(Univ. of St. Andrews, UK)

über

„De Donder-Weyl Hamiltonian theory and precanonical quantization: an untrodden path to quantization of fields and gravity“

Abstract:

I will discuss (I) the De Donder-Weyl (DW) Hamiltonian and Hamilton-Jacobi formulation of classical fields and the underlying mathematical structures which can be used for quantization (the polysymplectic structure and the Poisson-Gerstenhaber brackets), (II) a field quantization based on those structures (precanonical quantization) which leads to a hypercomplex rather than infinite-dimensional generalization of quantum theory as a description of quantum fields, (III) examples of precanonical quantization of a nonlinear scalar field on flat and curved background, and the pure Yang-Mills field, (IV) the consistency of precanonical quantization with the Ehrenfest theorem, (V) the relation to the standard QFT in the functional Schrödinger representation, which appears as a singular limiting case, (VI) precanonical quantization of general relativity in vielbein Palatini formulation and the spin-connection foam picture of quantum geometry of space-time it leads to.

Zeit: Donnerstag, 10.1.2019, **14.00**
Ort: Arbeitsgruppe Gravitation, Währinger Straße 17,
Raum 218, 2. Stock

gez.: P. Chrusciel, D. Fajman