Sommerfeld Theory Colloquium

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Field theories of quantum chaos

Recent years have witnessed dramatic progress in quantum nonlinear dynamics ('quantum chaos'): the primary theoretical concept in the field, semiclassical analysis, has been advanced to a stage where it can be applied to the description of even very complex phenomena. In the first part of the talk I will review these developments and discuss some of the more striking problems that have been solved. In the second part, I will aim to put recent theoretical progress into a larger context: semiclassical analysis can be interpreted in terms of the perturbative expansion of a certain quantum field theory. This connection has not yet received the degree of attention it actually deserves, perhaps because the field theory in question - a non-commutative supersymmetric field theory with Wess-Zumino term - is somewhat excotic. Nonetheless it is very powerful, as I will demonstrate on a number of examples, and by drawing analogies to the field of disordered electronic systems.

Wednesday, 26th November 08, 10:45 h, Room 348 / 349, Theresienstr. 37 / III

Prof. J. v. Delft