Speaker:Amir Abbass Varshovi

Title: Groenewold-Moyal Star Product; From Analytical Details to

Abstract: Application in Non-Commutative Quantum Field Theories Abstract: The analytic properties of Groenewold-Moyal star product are studied precisely. It is shown that the Groenewold-Moyal star product is well-defined only for the algebra of Schwartz class functions with compactly supported Fourier transforms. This restriction imposes a natural relativistic cut-off on noncommutative quantum field theories, which is referred to as "quantum field cut-off". It is established that the quantum field cut-off substantially puts a discrete lattice structure on the space-time manifold. Moreover, using the idea of quantum field cut-off, the renormalizablity problems of Groenewold-Moyal noncommutative quantum field theories are studied with more analytical details via the path-integral formalism.