1. Motivations and Overview

Abstract: We review the reasons of interest in NCQFT (Non-Commutative Quantum Field Theory) and the recent progresses on the renormalization of these theories.

2. Scales and Renormalization Group

Abstract: We explain in more detail the renormalization of the Non-Commutative $\phi^4_4$ theory and the recent proof of its asymptotic safeness: the beta function vanishes at every order of perturbation theory in the ultraviolet regime.

3. Constructive Aspects

Abstract: We explain the main difference between constructive and perturbative field theory and a recent idea to avoid some of the technicalities (cluster and Mayer expansions) usually linked to Bosonic constructive field theory. This idea should also be useful for a complete construction of the Non-Commutative $\phi^4_4$. 