Speaker: Dmitry Ageev

Title: Effective quantum field theories and ultrametricity

We study interacting ϕ^4 quantum scalar field theory defined on the unramified extension of p-adic numbers and for different "space-time" dimensions n, we discuss computation of one-loop quantum corrections to the effective potential. Surprisingly, despite the unusual properties of non-Archimedean geometry, the Coleman-Weinberg potential of p-adic field theory has a structure very similar to that of its real cousin. We discuss two formal limits of the obtained effective potential $p \to 1$ and $p \to \infty$, and show that the $p \to 1$ limit allows to reconstruct the canonical result for real field theory from the p-adic effective potential. Among other things we will discuss preliminary results obtained in this direction for other ultrametric versions of QFT. This talk is based on arXiv:2004.03014 and some work in progress.