Institut Henri Poincaré

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String Theory in Greater Paris

Rencontres Théoriciennes

“Supergravité, théorie des cordes et théorie M”

Jeudi 11 Avril 2024, 11:45

Bernardo Zan

University of Cambridge

New results for the Schwinger model from the lattice

Lattice methods are of fundamental importance when dealing with strongly coupled QFTs. I will consider one of the simplest gauge theories, the Schwinger model (QED in 1+1 dimensions) with one or more fermion flavors. This theory is solvable only if the fermions are massless ; if they are massive we need to resort to numerical methods, such as Kogut-Susskind staggered fermions. I will improve this lattice implementation of the Schwinger model by considering the chiral anomaly on the lattice ; this will imply that the relation between lattice and continuum parameters is subtle. The correct identification of the parameters will greatly improve numerical convergence, and I wll use this to obtain new quantitative and qualitative results, e.g. the phase diagram of the two flavor Schwinger model at zero temperature.

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