Path integral description of metal-insulator phase transition in Hubbard model

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Using the path integal formalism worked up earliar for strongly correlated electron systems the metal-insulator phase transition was studied in the Hubbard model. The appearance of an insulator phase is caused by appearance of fermionic condensate. The constant grassmann number characterising this condensate parametrises the process of deformation of flat space-time Poincare algebra into the algebra of curved space-time which contains S3 space. It was shown that inverse radius of the S3 space equal to the gap in the electron spectrum.
The electrons in Mott insulator phase move in the curved space-time; their spectra were described by Dirac operator in curved background space-time of constant curvature.
The scenario of the spontanious symmetry breaking in metal-insulator phase transition based on "tower of symmetry" is discussed. The connection of "tower of symmetry" to conformal group is under study.