Titel: Wigner measures and effective mass theorems

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Abstract:
"In this talk, we shall present recent results concerning the dynamics of an electron in a crystal in the presence of impurities. It is well-known that under suitable assumptions on the initial data, the wave function can be approximated in the semi-classical limit by the solution of a simpler equation, the effective mass equation. Using Floquet-Bloch decomposition, we establish effective mass equations for rather general initial data, by introducing a new type of effective mass equations which are operator-valued and of Heisenberg form."