Symbolic algorithm for generating the multistep adiabatic representation

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Symbolic algorithm for generation of a step by step adiabatic approximation for the N-particle quantum mechanical problem is introduced in order to study the induced gauge fields is developed. Application of the complex-vector-bundle formalism provides a natural framework for description of the multi-channel effective dynamics. Some examples and practical realization of a first step of the above procedure, known in computational mathematics as the Kantorovich method [1] of reduction boundary problem for elliptic partial differential equations to systems of ordinary differential equations, are considered [2-4].

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4. Chuluunbaatar O. et al. 2009 Comput. Phys. Commun. 10.1016/j.cpc.2009.04.017 (2009)