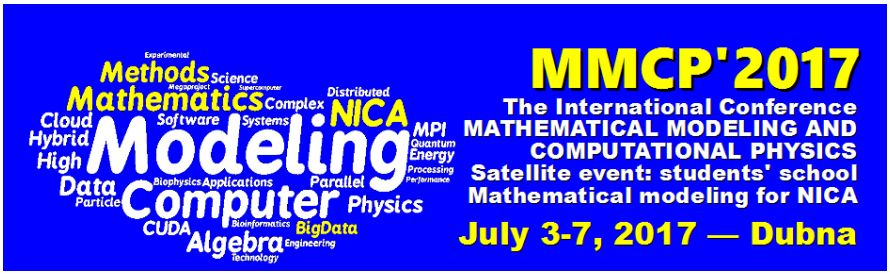

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Quasicrossings of the energy terms in the two-Coulomb-centre problem

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The first three corrections to the bound state energy, separation constants, and wavefunctions of hydrogen-like ion in the field of remote ($R \gg 1$) point charge are calculated by means of the modified perturbation theory. The consistent scheme for obtaining WKB expansions for solutions of the quasiangular equation in quantum mechanical two-Coulomb-centre problem Z_1eZ_2 is developed. In the framework of this scheme, the quasiclassical angular Coulomb spheroidal wavefunctions for large distances between the fixed positive charges (nuclei) are constructed for the below-barrier motion of the negative particle (electron). The quasi-classical expression for the exchange interaction ΔE of potential curves at the points of their quasicrossing is found. It can be used further for the calculation of cross sections of charge exchange processes between hydrogen or hydrogen-like atoms and bare nuclei.

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