

SYSTEM OF TWO CHARGED
AND ONE NEUTRAL PARTICLES
STRONGLY INTERACTING WITH ONE
ANOTHER IN THE CONTINUOUS SPECTRUM

V.K. Tartakovsky^{1,2}, I.V. Kozlovsky², V.I. Kovalchuk³

¹Institute for Nuclear Researches,
Nat. Acad. Sci. of Ukraine
(47, Nauky Prosp., Kyiv 03028, Ukraine),

²M.M. Bogolyubov Institute for Theoretical Physics,
Nat. Acad. Sci. of Ukraine
(14b, Metrolohichna Str., Kyiv 03143, Ukraine),

³Taras Shevchenko Kyiv National University
(2, Build. 1, Academician Glushkov Ave.,
Kyiv 03127, Ukraine)

S u m m a r y

The Faddeev-type equations for a system of three strongly interacting particles, two of which are charged and the remaining neutral particle is bound to only one of them, have been transformed into a form suitable for the further investigation and calculations. In the modified equations, the principal parts associated with the Coulomb interaction can be separated, and the most complicated summands of the complete three-particle wave function can be written in terms of fast convergent series of the products of spherical functions. In addition, the integral equations for the radial wave functions of two dimensional variables have been derived in the basic approximation.