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Critical nucleus charge in a superstrong magnetic field: effect of screening

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The results of the recent paper (http://arxiv.org/abs/1112.1891, accepted in Phys.Rev.) written in collaboration with B.Machet and M.I.Vysotsky are presented.

We investigated how radiative corrections in QED in a superstrong magnetic field change the value of critical charge Z_{cr}. We discovered that the phenomenon of screening of the Coulomb potential which has been discovered recently leads to the significant change: the nuclei with Z<52 never becomes critical; stronger B is needed for a nucleus with Z>52 to become critical than without taking screening into account. We also analysed the contribution of higher loops to the effect of screening.

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