macroion Effective charge in complex plasmas [[1]](#footnote-1)\*)

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In this paper, a classical two-component electroneutral equilibrium system of finite-sized macroions with a charge *Z* (*Z ≫* 1) and oppositely charged microions with a single charge is considered. A self-similar dependences of the macroion effective charge *Z*\* on the macroion initial charge *Z*, the system temperature, and the macroion size are obtained for fixed packing parameters in the framework of the Poisson–Boltzmann approximation in the average spherical Wigner-Seitz cell [1] and in the Poisson-Boltzmann plus hole approximation [2] (i.e., with regard to the nonlinear screening effect inside the hole) (hereinafter, in the PBH approximation). The self-similar dependence of the macroion effective charge on the macroion initial charge, the system temperature, the macroions concentration and the macroion size. All microions are subdivided into free and bound in the both approximations (in the Wigner-Seitz cell and in the hole). The concept of the macroion effective charge is introduced and its decrease was shown in comparison with the macroion initial charge in the Poisson-Boltzmann approximation in the Wigner-Seitz cell and in the hole both with an additional consideration of microions correlations inside the cell [3] and inside the hole [2] correspondingly. The paper evaluates the possibility of a microions pseudo-liquid phase separation into more and less dense phases in the PBH approximation with the microions correlations consideration [2]. В данной работе рассматривается классическая двухкомпонентная электронейтральная равновесная система макроионов конечных размеров с зарядом *Z* (*Z* >> 1) и противоположно заряженных микроионов с единичным зарядом.

References

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1. \*) [abstracts of this report in Russian](http://www.fpl.gpi.ru/Zvenigorod/XLIX/Lt/ru/ED-Martynova.docx) [↑](#footnote-ref-1)