The close vicinity ions as modifiers of the mean form of cut-off potential: simple approach

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There is a need for correct broadening mechanisms for the investigated models of dense plasmas. The simplest method for describing a close ion coulomb field as well as temperature influence is sort of close vicinity dense packing. The complex ions are treated within the cut-off potential model that is selected as a first candidate for this approach. The ions in dense plasma possess a potential energy comparable or several tens of times stronger than kinetic, thermal energy. In such conditions it is a fair estimate that ions in such plasma form relatively stiff structures. Within this frame a first order estimate is to consider a static ionic structure with thermal energy of ions influencing only mean inter-ionic distance. Alongside with this the far ions are screened and as such only a close vicinity ionic field is needed to be calculated more accurately, while further range ions, when needed, could be considered as point ones. The work on obtaining adequate broadening profiles based on the assumptions of dense strongly coupled plasma are carried out.