Abstract Submitted
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Density profile and breathing mode of strongly correlated spherical Yukawa plasmas[1] CHRISTIAN HENNING, ITAP, University of Kiel, KENJI FUJIOKA, City College of New York, PATRICK LUDWIG, MICHAEL BONITZ, ITAP, University of Kiel — The structure of "Yukawa balls," i.e. spherical 3D dust crystals, which recently have been produced [1], is well explained by computer simulations of charged Yukawa interacting particles within an external parabolic confinement [2]. Dynamical properties (e.g. breathing mode) of these systems were investigated by experiment, simulations as well as theoretically by using the ansatz of a uniform ground state density [3]. Here we show analytically that screening has a dramatic effect on the density profile which decreases away from the center [4,5] and which is in excellent agreement with MD simulations of Yukawa balls. This result is used to improve former calculations of the breathing mode [6].

References
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