Abstract Submitted
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Breathing Mode in Complex Plasmas[1] K. FUJIOKA, City College of New York, C. HENNING, P. LUDWIG, M. BONITZ, ITAP, Christian-Albrechts-Universitaet zu Kiel, A. MELZER, Institute of Physics, Greifswald University, S. VITKALOV, City College of New York — The breathing mode is a fundamental normal mode present in Coulomb systems, and may have utility in identifying particle charge and the Debye length of certain systems. The question remains whether this mode can be extended to strongly coupled Yukawa balls [1]. These systems are characterized by particles confined within a parabolic potential well and interacting through a shielded Coulomb potential [2,3]. The breathing modes for a variety of systems in 1, 2, and 3 dimensions are computed by solving the eigenvalue problem given by the dynamical (Hesse) matrix. These results are compared to theoretical investigations that assume a strict definition for a breathing mode within the system, and an analysis is made of the most fitting model to utilize in the study of particular systems of complex plasmas [1,4].

References
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