Abstract Submitted
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Dimensionality effects on the emergence of superdiffusion in Yukawa liquids[1] PATRICK LUDWIG, TORBEN OTT, MICHAEL BONITZ, Christian-Albrechts-University zu Kiel, ZOLTAN DONKÓ, PETER HARTMANN, Research Institute for Solid State Physics and Optics, Hungarian Academy of Sciences, Budapest — A three-dimensional Yukawa liquid exhibits normal self-diffusion which is characterized by Fick's law and a time-independent diffusion coefficient D [1]. This quantity can be evaluated from the Einstein relation, $D = \langle r(t)^2 \rangle / 6t$. If however the mean-squared displacement $\langle r(t)^2 \rangle$ grows faster than linearly with time, the diffusion coefficient is not well defined and the systems exhibits superdiffusive behaviour. Recently, superdiffusion has been observed in two-dimensional Yukawa liquids [2]. In this contribution we enter into the question about the occurrence of superdiffusion in the transiton-region from a purely three-dimensional to a quasi 2D system where one dimension is confined [3,4].

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