STATISTICAL MODEL OF A COLLOIDAL PLASMA WITH DYNAMIC RECHARGING

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The low-frequency excitations in colloidal plasma with dynamic recharging were investigated on the ground of the renormalized statistical approach. It was shown that the dynamic recharging conditioned by electron-dope and ion-dope interaction gives a rise to additional nonlinear broadening of the electrostatic spectrum and to renormalization of the absorption frequency. The renormalized width of the long-wave potential spectrum is much larger than the conventional one and is independent on the wavenumber, so that the energy transfer towards large wavelengths is absent, and the Kolmogorov spectra are forbidden. An interesting result is that the anomalous diffusion is strongly reduced by dynamic recharging. All this makes it possible to assume that colloidal plasmas are the interesting objects for further theoretic and experimental investigation.