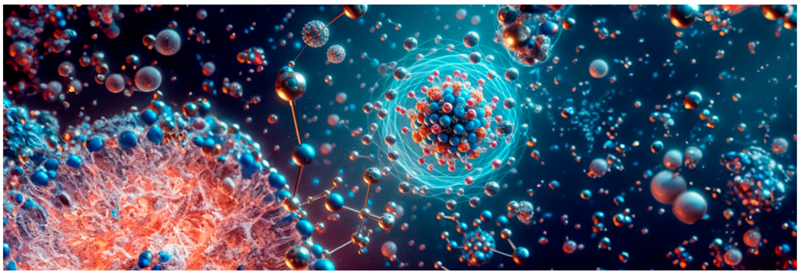

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Tipo: **Poster**

Nearest-Neighbors Spacing Distribution and Log-Time-Scaled Law for 2D-Dyson Gases

We study the time-evolution from an initial state to an equilibrium state for a 2D-Dyson gas of N charged particles interacting through a 2D-logarithmic Coulomb potential surrounded by a thermal bath at a reduced temperature $\beta = q_0^2/(k_B T)$, with q_0 the charge per particle, T the temperature of the bath and k_B the Boltzmann's constant, for β in range $[0.1, 4.0]$. We analyze the standard deviation of two-particle distances using a standard growth model in logarithmic independent variable, and the spacing distribution between nearest neighbors using a generalized Wigner's distribution model from which we can know the standard deviation to compare with the initial analysis. We show how a logrithmic-time-law scale governs the time-evolution of this process and prove the validity of Wigner's Surmise for $\beta \geq 1.0$ compared with those values used in Gaussian ensembles for times greater than relaxation time $\tau \gg \tau_{\mathrm{Eq}}$, i.e., when the system has reached the thermal equilibrium.

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