

# Evolution of wave processes in the system of synthesized Brownian particles

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Micro- and nano-particles can be formed in the volume of the gas-discharge plasma. By acquiring a significant electrical charge in plasma, the particles exhibit unique dynamic properties, including the ability to self-organise [1]. In such particle's structures, various collective effects are possible, for example the occurrence of dust-acoustic instabilities [2].

Experimentally studied wave processes in the system of synthesized Brownian particles, dispersed in plasma of DC glow discharge. Observed the appearance and development of dust-acoustic instability in the system with its evolution over time. It has been demonstrated that an increase in particle concentration within the cloud leads to substantial modifications in the wave parameters.

[1] Petrov O, Statsenko K and Vasiliev M 2022 *Sci. Rep.* **12**(8618)

[2] Melzer A, Krüger H, Schütt S and Mulsow M 2020 *Phys. Plasmas* **27**(033704)