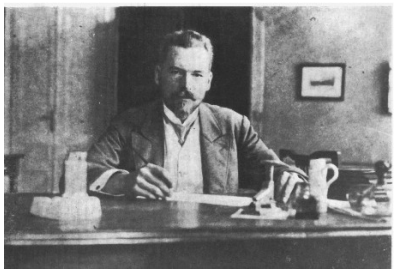

Contribution ID: **43** Type: **Contributed talk**

Relaxation of random sequential adsorption packings of discorectangles aligned on a line

Monday, 27 September 2021 13:10 (20 minutes)

Relaxation of packing of elongated particles (discorectangles) aligned on a line was studied numerically. The aspect ratio (length-to-width ratio) for the discorectangles was varied within the range $\varepsilon \in [1; 50]$. The initial jamming (saturated) state was produced using the basic variant of the random sequential adsorption (RSA) model with random positions and orientations of particles. The relaxation was done accounting for the rotational and translational diffusion motions of particles with their centers located on a line. Effects of aspect ratio ε on kinetics of relaxation, orientation order parameter and distribution function of the distances between nearest-neighbor discorectangles were analized. The transport properties of the obtained 1d systems were also analyzed using the diffusion of a tracer particle (random walker) between the nearest-neighbor discorectangles. In the relaxed states the anomalous diffusion was observed with hopping exponent $d_w > 2$ dependent upon ε.

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Session Classification: S2