THE CONJUGATE PROBLEM IN MD SIMULATION OF 2D CONVECTION OF RAYLEIGH-BENARD

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The system of absolutely rigid massive disks moving in a rectangular region under the forces of gravitation was investigated. While moving the disks collide with each other: $|\mathbf{r}_j - \mathbf{r}_k| \geq D$ and with regions' boundaries:

$$x_j + R \leq x_+, \quad x_j - R \geq x_-, \quad z_j + R \leq z_+, \quad z_j - R \geq z_-.$$

Between collidings the disks move according the Newton's law $m \cdot \ddot{z}_j = -g$. The disks collisions with vertical boundaries are absolutely elastic. When disks collide with horizontal boundaries the horizontal components of velocity stay unchanged and vertical components of velocity after impact are distributed according to the equilibrium functions $\exp(-mv_z^2/kT)$. The temperature T_1 of the upper boundary is less than the temperature T_2 of the bottom boundary. The discs movement was simulated numerically on the computer. The main attention was paid to the sorting of impacts' times in order to accelerate the calculations.

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