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Numerical modeling of bacterium interaction at tangential direction

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Understanding of bacterium interaction behavior opens a new possibility to analyze various bacterial cultures. Also, to understand phenomena related to a motion of bacterium. As an example, one of the phenomena can be related to bacterium motion in the human circulatory system, sticking to a surface or infection transmission in the air, were bacterium is transmitted in a water droplet. The process of bacterium motion is solved numerically, applying the motion describing various models. Here was prepared numerical experiment, in which it is found the change of acting forces during bacterium interaction at a distance as well during bacterium deformation. Moving towards the surface bacterium motion is described with force components, which are acting at normal and tangential directions. Usually bacterium has oblique interaction and in this case the theoretical tangential interaction needs to be considered. The problem is that unlike normal direction, description of adhesive dissipative bacterium interaction at tangential direction is not known and limited knowledge available in known literature. This problem was analyzed, a theoretical model is considered. By applying this model, there are given numerical experiments results as time dependent acting forces as well as a change of an interacting bacterium displacement, velocity.

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