



molecular weight compounds and colloidal solutions of the same concentration (A.S. Turaev et al., 2008; I.E. Stas' et al., 2015; Zobov K.V., 2017). The problem remains to study the rheological, structural and mechanical properties of polymers aqueous solutions in the presence of metal and semiconductor nanoparticles, since it is the rheological properties that are most sensitive to changes in the molecular structure of polymer matrices and their complexes. It is characteristic of nanoscale objects that due to their special interaction with the medium, even small additives of nanoparticles to the composite, can significantly improve its mechanical properties, such as strength, adhesion, hardness, fluidity and viscosity, in particular, it is shown that the increase concentration and reduction of particle size leads to an increase in the viscosity of the polymer-colloidal solution. It is established that nanopowders of silicon dioxide of different sizes dramatically affect the viscosity of liquids (Zobov KV, 2017).

The primary task in the aspect of composite materials is to analyze the mechanisms of influence of nanoparticles on the physicochemical parameters of polymer-colloidal solutions in order to identify the factors that differentiate the types of nanopowders.

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SEPARATING OF TWO NORMAL DISTRIBUTED RANDOM VARIABLES BY USING THEIR STREWNFIELD

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We consider two sets A and B in two-dimensional Euclidian space R^2 , which are generated by normal distributed random variables ξ, η with parameters μ_ξ, Σ_ξ and μ_η, Σ_η accordingly. The ε -separation problem is the problem of finding the line which separates space R^2 into subspaces H^+ and H^- such as $P\{\xi \in H^+\} + P\{\eta \in H^-\} < \varepsilon$.

Suppose $\varepsilon_{\xi A} + \varepsilon_{\eta B} \leq \varepsilon$ ($n_A + n_B$). Then ε -separation problem is considered as the problem of finding the line, which separates space R^2 into subspaces H^+ and H^- such as $P\{\xi \in H^+\} < \varepsilon_\xi$ and $P\{\eta \in H^-\} < \varepsilon_\eta$.

If sets A and B are equivalent, one can take $\varepsilon_\xi = \varepsilon_\eta = 1/2\varepsilon$. In the case of medical forecasting, if it is necessary to separate the set of patients with the presence of pathology (set A) and without it (set B), in order to maximize the sensitivity of the test, the ε_ξ should be minimized, and if necessary to increase the specificity of the test, the ε_η should be minimized.

We construct the strewn field B_{ε_ξ} of the probability $1 - \varepsilon_\xi$ for the random variable ξ . The probability of a random variable being outside this strewn field is equal to ε_ξ . Similarly, we construct the strewn field $B(\varepsilon_\eta)$ for a random variable η . Then, if the strewn fields $B(\varepsilon_\xi)$ and $B(\varepsilon_\eta)$ are separable, the sets A and B are ε -separable, and the separating line for the strewn fields $B(\varepsilon_\xi)$ and $B(\varepsilon_\eta)$ is ε -separable for the sets A and B .

So, the problem of ε -separability of two sets, which are generated by the normal-distributed random variables can be reduced to the task of separability of this random variables' strewn fields.

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DEVICES FOR SURGICAL TREATMENT OF FRACTURES AND DAMAGES OF LONG BONES

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In operative treatment of fractures and damages of long bones bone-surface osteosynthesis is widely used, as the cheapest, accessible type of osteosynthesis. The use of this type of osteosynthesis is associated with a number of problems that arise in the further use of the fixator.

Existing bone-surface device structures, as a rule, are, in most cases, single-leafed. They unsatisfactorily resist bending deformations of the frontal plane, as well as – deformations of torsion. In addition, such sketch structures should be quite massive, as they should provide a