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Technological Advantages

**ASSESSMENT OF THE OPERATIONAL LIFE OF CONCRETE AIRFIELD
PAVEMENTS ON THE BASIS OF RELIABILITY THEORY**

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ABSTRACT

The mathematical model of development and accumulation of defects of obtained with the use of the principal dependences of reliability theory is proposed. This model is implemented in the method of assessment of an operational life of concrete airfield pavements

DURABILITY AND EFFICIENCY OF REINFORCED CONCRETE STRUCTURES

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ABSTRACT

The new and effective theory of concrete creep considering the effect of instant deformations upon the properties of creep is proposed. The theory takes into account all important features intrinsic to reinforced concrete designs. The gap existing between the nonlinear theory of short-term loading of concrete members and the linear theory of long-term resistance has been overcome. The carried out numerical experiments have shown the existence of a vast range of values for the coefficient of long-term resistance. Some specific problems of polymer concrete creep are discussed.



MODELLING OF COMBINED CASCADE CLASSIFIERS

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ABSTRACT

Since the creation of cascade classifiers, the most prominent achievement in the technology of loose material separation is the development and application of combined cascade apparatuses. These apparatuses use simultaneously several identical or different separating cascades, which makes it possible to improve considerably the produced material quality. On the basis of generalized experience in the application of such apparatuses, a strict mathematical model of separation processes in these apparatuses has been developed. The adequacy of the model to experimental results is demonstrated.



QUALITY CRITERION FOR COMBINED CASCADE CLASSIFIERS

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ABSTRACT

Combined classifiers consisting of several interconnected independent apparatuses have been recently used in industrial practice. We make an attempt to develop an objective quality criterion for such apparatuses on the basis of certain boundary conditions. Using this criterion, we have analyzed operating schemes of two- and three-element combined classifiers and determined the most efficient ones.

INITIATION SYSTEM OF EXPLOSIVES BY LASER MONOIMPULSE

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ABSTRACT

The experimental specimen of the new optical system of explosives charge initiation (OPSIN) is developed first. The system is able to work in two modes: to pass to an impulse the optical detonators on a light-fibrous system, or directly through an air atmosphere. The sensitiveness of the primary initiating explosives in detonators is confirmed with PETN one and, thus, these explosives determine safety of the system on the whole.

CALCULATION OF PUMPABLE (SLURRY) ICE MACHINE CAPACITY

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ABSTRACT

With pumpable (slurry) ice made from salt water solution, the ice production measurements were obtained for a range of ice concentration, solution flow rates and evaporating temperatures. The similarity theory was applied to obtain an analytical dependence of pumpable ice capacity on the essential parameters of ice machines. The proposed model can be recommended for rational design of the pumpable ice crystallizer constructions in the fish, food and chemical industries, supermarket refrigeration, thermal energy storage systems and production of icewine.