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## ТЕЗИСТЕР · ABSTRACTS

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- S. Shaimardan, *Weighted estimate of  $q$  - integral operator with a logarithmic singularity* 164
- M. Shishlenin, *Regularization methods for multidimensional analog of Gelfand–Levitan–Krein equation* 165
- T.A. Shmygaleva, A.I. Kupchishin, E.V. Shmygalev, Sh.E. Jeleunova, L.Sh. Cherikbayeva, I.D. Masyrova, B. Alirakymov, *Mathematical modelling of radiating processes in solids irradiated by heavy ions* 166
- Yu.I. Shokin, S.G. Cherny, D.V. Esipov, V.N. Lapin, A.E. Lyutov, D.S. Kuranakov, *Three-dimensional model of fracture propagation from the cavity caused by quasi-static load or viscous fluid pumping* 167
- O.V. Taseiko, T.P. Spitsina, H. Milosevic, *Self-purification modelling for small river in climate conditions of Central Siberia* 168
- N.M. Temirbekov, D.R. Baigereyev, *Modeling of three-phase non-isothermal flow in porous media using the approach of reduced pressure* 169
- N.M. Temirbekov, E.A. Malgazdarov, S.O. Tokanova, *Comprehensive program for numerical simulation convective flow of viscous incompressible fluid a curvilinear coordinate system* 170
- M.I. Tleubergenov, D.T. Azhymbaev, *On the construction of equations in the form of Lagrange, Hamilton and Birkhoff by the given properties of motion in the presence of random perturbations* 171
- A. Toleukhanov, A. Kaltayev, M. Panfilov, *Analytical and numerical studies of the impact of growth kinetics, motion and chemotaxis of methanogenic bacteria on changes of the composition of hydrocarbon mixture in underground gas storages* 172
- A.N. Tyurekhojayev, G.K. Kalzhanova, A.G. Ibrayev, *Analytical solution of the problem about bending of annular plates subject to the action of the lateral load* 173
- A.N. Tyurekhojayev, M.Zh. Sergaziyev, *Propagation of nonlinear waves in a mechanical system with contact dry friction under the action of cyclic loads* 174
- D.T. Ybyraiymkul, A. Kaltayev, K.C. Ng, *Thermal behaviours of the absorbed natural gas storage* 175
- Z.Kh. Yuldashev, A.A. Ibragimov, Sh.Sh. Shominasov, *Algorithms of determination by the path of robots in the conditions of interval uncertainty of data* 176



The main complexity consists of determining the expression of the friction's sign function, which significantly depends on both the boundary and initial conditions, of the law of dry friction. The dependence domain for resolving problems of this sort is determined by the kappa-function method of A. Tyurekhodjayev. Applying the kappa-function method in many problems of this sort can determine the nonlinear function of friction and record it as an infinite sum of Heaviside functions with shifted arguments. Then, the nonlinear friction function becomes a function of independent arguments, and the problem can be resolved using one of the standard methods for solving linear equations.

Exact analytical results are obtained for a class of problems wherein the frequency of the external load is  $n$  times greater than the system's free frequency. The analysis of results obtained allowed us to construct solutions on the whole area of the dependence domain of the problem solution. The general solution of the problem is recorded by progressive waves that covered the travel way. The record of solutions in characteristic regions gives a pictorial view of the functions of displacement, stress and velocity. The class of loads under which the system shows subharmonic and ultraharmonic oscillations are determined. Depending on the evenness and oddness of the frequency ratio, the system gets unlimited displacements or performs steady oscillations.

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#### *Thermal behaviours of the absorbed natural gas storage*

As emitters of primary and secondary pollutants, motor vehicles are considered as one of the main contaminants of air in urban areas as well as in rural communities, and also contribute to global warming in significant amounts. Therefore, with the purpose of solving the problems, other types of energy sources are considered and studied as an alternative fuel for motor vehicles. And, one of them is a natural gas (NG) which became attractive because of its availability in abundant quantities, cost and meeting environmental standards. Nowadays, vehicles using