AZERBAIJAN NATIONAL ACADEMY OF SCIENCE

INSTITUTE OF MATHEMATICS

REPORT OF

"Wave dynamics" department

for the year of 2016.

ON SCIENTIFIC ABILITY.

On the report period scientific works were carried out on "Dynamics of medium-contacting prismatic bodies and shells". The department consists of 11 employees, Including ten research associates.

Work A. Studying vibration of non-circular plates. Doct.phys.math.sci.prof. Agalarov J.N.

Free vibration of an elastic thin shelled plate are considered. Free vibrations in annular and circular plate it different strength are known.

In the considered work free vibration of a noncircular plate are considered some special solutions of the equation of motion of a plate in noncircular form are given.

Work B. Investigating propagation of non-elastic waves in thick shelled rectangular prismatic bodies.

Doct.phys.math., sci, sen.res.ass. Rasulova N.B.

The report paper was devoted to propagation of elastic and viscous. elastic waves in thick-walled rectangular prismatic bodies.

In the considered configuration bodies wave processes were first analytically studied.

Work C. Stability of fibres made of nano-composite materials in infinite elastic matrix surrounded by shells.

Doct.phys.math.sci. Zamanov A.D.

Stability of a fibre separated by two successive shell in infinite elastic matrix in subcritical deformation was studied by theory three-dimensional linearized elastic stability based n piecewise homogeneous body model.

Work D. Studying free vibrations of thick-walled spherical, fluid-filled shells.

Cand. phys.math.sci. Seyfullayev A.I.

In our previous works we have studied free vibrations of thin-walled, spherical, compressed fluid containing shell. Now we study vibrations of a fluid-containing sphere of finite thicken.

Work K. Developing a new method for solving many-dimensional elastic-dynamics problem.

Cand. phys.math.sci., lead.res.ass. Rasulov M.B.

The problem of finding four unknown functions from boundary condition equation for finding general solution of three-dimensional elastic-dynamics problems was solved. For that new solution f wave equation are used.

Work E. Studying of influence of density and geometrical sizes an free vibrations f elastic medium-filled spherical shell.

Cand. phys.math.sci. , lead.res.ass. Rustamova M.A.

In the paper axi-symmetric free vibrations of fluid containing thin walled cylindrical shell are considered.

Transcendental equations are given for finding natural vibrations.

Work I. Studying free vibrations of elastic medium-filled cylindrical shell.

Cand. phys.math.sci. , lead.res.ass. Mammadova G.A.

Free vibration of a cylindrical and medium equality of velocities of medium and cylinder in normal direction was taken.

Work N. Studying of the problem of central crack in second kind orthotropic materials.

sen.res.ass Aliyev I.Y.

In the work cracking of 2 layer composite materials with two additional crack in studied. This time, the materials in the composite are transferred to the second kind orthotropic materials.

Work M. Forced vibration of cylindric shells dynamically interacting with medium under compressed force.

In the work, vibration of cylindric shells dynamically interacting with medium under compressed force are studied.

Head of the "Wave Dynamics" department

Doct. phys. math.sci., prof. Agalarov J.H.