

Report of the “Creeping theory” department of IMM ANAS for the year 2015

In “Creeping theory” department work 12 collaborators, including 10 (ten) research associates, 1 (one) senior laboratory assistant, 1 (one) technical personnel. On the report year the research works were conducted on the theme “Deformation of constructions made of rheonomic materials”. It is intended to execute ten scientific works. The work that intended to be done under the plan has been performed in full volume.

I.Scientific activity

Work: “Solution of a problem on application of theory of viscous-elasticity to esthetic surgery.

Executor: doct.ph.math.sci.prof. L.Kh.Talybly

Defining equations of skin were constructed, a system of experiments for defining the parameters contained in these equations were suggested.

Work: “A contact problem for heat releasing massive weakened with variable thickness slots”.

Executor: senior res.ass.prof. V.M.Mirsalimov

The partial closing process weakened by variable thickness slots in circular cross section cylindric channels in heat releasing massive was mathematically simulated on the basis of thermo elasticity theory methods.

Work: Prediction of corrosive failure of a leam curved in corrosive medium.

Executor: cand.ph.math.sci., lead.res.ass., R.A.Kazimova

The total wear time and cracking time of the considered beam were determined.

Work: On a solution of pressure of viscoelastic thread by a die

Executor: cand.ph.mathy.sci.ass,prof., M.A.Mammadova

Statement and solution of stress-strain problem resulted under the pressure of annular stamp in viscoelastic deformable thread was given.

Work: Periodic contact problem for a plate with a stringer weakened by a system of slots

Executor: cand.phys.math.sci.ass.prof.lead.re.ass., M.V.Mirsalimzade

A problem on partial closing of variable thickness slots in a plate strengthened with stringers was solved.

Work: Prediction of corrosive failure of bodies in nonstationary concentration corrosive medium

Executor: res.ass., H.A.Mammadova

The formula allows to predict the time and place of corrosive destruction of the bodies properly configured in an aggressive environment variable, depending on the time of concentration.

Work: Corrosive failure of beams subjected to torsional and twisting moments in corrosive media

Executor: jun.res.ass., E.T.Bagirov

Forecasted time corrosion damage as a result of bending and twisting in a hostile environment with a rectangular beam cross-section.

Work: Simulation of failure of a semi-infinite plane with tangential stresses on the surface

Executor: jun.res.ass., R.G.Alimammadov

The long-term failure process acting on semi-infinite natural plane made of appropriate viscoelastic material was modeled with failure process of a semi-infinite model plane.

Work: Failure of an oval cross-section prismatic bar under torsion

Executor: jun.res.ass., N.M.Nagiyeva

A problem on fatigue failure during iterative torsion deformation of a prismatic beam was solved.

Work: Consideration of plastic deformation in propagation of crack in wire drawing tool

Executor: res.ass., F.E.Valiyev

The formation of cracks and the effect of plastic deformation by external forces in the tool, a tensile cord.

II.Scientific organizational activity

On the report period, the collaborators of the department published 27 (twenty seven) papers and 3 (three) abstracts for conference including 26 (twenty six) papers in foreign journals (14 (fourteen) of them in impact-factor journals) and 13 (thirteen) papers in Thomson Reuters journals.

The collaborators of the department L.Kh.Talybly, R.A.Kazimova, M.A.Mammadova gave a talk at the VII International Conference “Mathematical Analysis, differential equations and Applications” hold on September 2015. The head of the department L.Kh.Talybly and senior res.ass.prof. V.M.Mirsalimov have given a talk at the institute seminar.

Prof. L.Kh.Talybly has worked as a member of the scientific Council of the Institute and as a member of the editorial board of the journals “Proc. Of IMM” and Tran.of. ANAS.

Prof. MVMirsəlimov continued his work at the Mathematics and Mechanics of the Higher Attestation Commission under the President of the Council's expert. Every Wednesday the department holds a scientific seminar.

Head of Department

doct.phys.math.sci.,prof., L.Kh.Talybly