

Program

September 04

8:30 – 9:00	Registration
9:00 – 9:10	Welcome address by Rector of Samarkand State University <i>Professor Rustam Ibragimovich Khalmuradov</i>
9:10 – 9:20	Welcome address on behalf of the International Tribology Council <i>Professor Mitjan Kalin</i>
9:20 – 9:25	Opening: <i>V.L. Popov and K. Khudoynazarov</i>
	<i>Chair: V.L. Popov</i>
9:25 – 9:55	J. Luo (Invited) Research progress on solid-liquid combined superlubricity (SLCS) <i>State Key Laboratory of Tribology in Advanced Equipment, Tsinghua University, Beijing, China</i>
9:55 - 10:25	M. Kalin (Invited) Real contact area and load-carrying capacity of hard multi-asperity surfaces <i>Laboratory for Tribology and Interface Nanotechnology, University of Ljubljana, Slovenia</i>
10:25 - 10:55	M. Nosonovsky ^{a,b} (Invited) Triboinformatics: Machine Learning methods in Tribology and friction-induced instabilities" ^a <i>Infochemistry Scientific Center, ITMO University, St. Petersburg, Russia</i> ^b <i>Department of Mechanical Engineering, University of Wisconsin–Milwaukee, USA</i>
10:55 - 11:25	<i>Coffee break</i>
	<i>Chair: J. Luo</i>
11:25 - 11:55	V.L. Popov Contact Mechanics for Everybody: How to Apply Method of Dimensionality Reduction to Non-Axisymmetric Homogeneous and Power-Law Graded Elastic Bodies <i>Institute of Applied Mechanics, Technische Universität Berlin, Germany</i>
11:55 - 12:20	<u>A. Bykovtsev</u> , M. Kasimov Ground motion prediction on active fault with deifferent slipe orientation <i>Regional Academy of Natural Sciences, Port Hueneme, CA, USA</i>
12:20 – 12:25	Conference Photo
12:25 - 13:50	<i>Lunch</i>
	<i>Chair: M. Kalin</i>
13:50 - 14:15	S.M. Aizikovich, P.A. Lapina On the equivalence of models of an inhomogeneous elastic foundations <i>Don State Technical University, Rostov-on-Don, Russia</i>
14:15 - 14:40	M. Popov Frictional phenomena: Micro or Macro? Macro-scale effects in dry friction: a mini-review <i>Technische Universität Berlin, Germany</i>
14:40 - 15:05	<u>I.A. Lyashenko</u> , V.L. Popov The effect of the angle between direction of motion of indenter and elastomer surface on adhesive contact properties: experiment and mathematical model <i>Institute of Applied Mechanics, Technische Universität Berlin, Germany</i>
15:05 – 15:35	<i>Coffee break</i>

Chair: V. Romanova

15:35 -16:05

A.I. Dmitriev, A.R. Shugurov, Yu.M. Koroteev

Development of a multilayer coating on the base of TiAlTaSiN: experiment and simulation

Institute of Strength Physics and Materials Science, Siberian Branch of the Russian Academy of Sciences, Tomsk, Russia

16:05 – 16:30

V.A. Romanova^{*}, R.R. Balokhonov

Mesoscale deformation-induced surface roughening in polycrystalline metals. Experiment and simulation

Institute of Strength Physics and Materials Science, Siberian Branch of the Russian Academy of Sciences, Tomsk, Russia

16:30 – 16:55

K.S. Sultanov

Contact interaction of the underground pipeline with soil under dynamic impacts

Institute of Mechanics and Seismic Stability of Structures named after M.T. Urazbaev of the Academy of Sciences of the Republic of Uzbekistan

19:00

Conference dinner

September 05

Chair: S.M. Aizikovich

9:00 - 9:30

Kh. Khudoynazarov

Longitudinal-radial vibrations of a three-layer cylindrical viscoelastic shell, with rigid contacts between layers

Samarkand State University, Uzbekistan

9:30 – 9:55

Q. Li

A numerical and experimental study on edge effect in non-adhesive and adhesive contacts

Institute of Mechanics, Technische Universität Berlin, Germany

9:55 -10:20

Fabian Forsbach, Emanuel Willert

A General Approximate Solution for the Slightly Non-Axisymmetric Normal Contact Problem of Layered and Graded Elastic Materials

Institute of Applied Mechanics, Technische Universität Berlin, Germany

10:20 – 10:50

Coffee break

Chair: Kh. Khudoynazarov

10:50 – 11:15

V.A. Skripnyak, M.O. Chirkov, E.G. Skripnyak, V.V. Skripnyak

Mechanical response of layered structures with internal Layers from metamaterials to dynamic loadings

National Research Tomsk State University, Tomsk, Russia

11:15 – 11:35

V.V. Skripnyak, K.V. Iohim, V.A. Skripnyak

Simulation of deformation and fracture of alpha titanium alloys under dynamic punching

National Research Tomsk State University, Tomsk, Russia

11:35 – 11:55

A.M. Poliakov, V.I. Pakhaliuk

In Silico Analysis of an Articular Cartilage Regenerative Rehabilitation under Conditions of Mesenchymal Stem Cells Implantation and Their Mechanical Stimulation

Laboratory of Biomechanics, Sevastopol State University, Sevastopol, Russia

11:55 – 13:20

Lunch

Chair: V.A. Skripnyak

13:20 - 13:45

A.Yu. Smolin, G.M. Eremina, I.P. Martyshina

Simulation of bone tissues at their contact with a dental implant under shock wave treatment

Institute of Strength Physics and Materials Science, Siberian Branch of the Russian Academy of Sciences, Tomsk, Russia

13:45 - 14:10	<p><u>I. Mirzaev</u>¹, K. Sagdiev², A. Yuvmitov², M. Turdiev¹, B. Egamberdiyev³ Experimental determination of the Amonton-Coulomb dynamic coefficient of dry friction ¹ Tashkent State Transport University, Uzbekistan, ² Institute of Mechanics and Seismic Stability of Structures named after M.T. Urazbaev of the Academy of Science of the Republic of Uzbekistan, Tashkent, Uzbekistan ³ Fergana Polytechnic Institute, Fergana, Uzbekistan</p>
14:10 – 14:35	<p><u>G. Purcek</u>¹, M. Demirtas², H. Yanar¹, K.V. Ivanov³, V.E. Ovcharenko³ Effect of pulsed electron beam irradiation on the microstructure, mechanical and tribological properties of Ni3Al-TiC composite ¹ Department of Mechanical Engineering, Karadeniz Technical University, Trabzon, Turkey ² Department of Mechanical Engineering, Recep Tayyip Erdogan University, Rize, Turkey ³ Institute of Strength Physics and Materials Science, Siberian Branch of the Russian Academy of Sciences, Tomsk, Russia</p>
14:35 – 15:00	<p>T.O. Almataev ¹, S.A. Yusupov ¹, N.T. Almataev ¹, Kh.R. Odilov ¹, M. F. Wani ² Study of tribotechnical properties of filled polymeric composite materials ¹ Andijan Machine-Building Institute, Uzbekistan. ² HAG Professor of NIT, Sirinagar, India,</p>
15:00 – 15:30	<p>Coffee break</p>
	<p>Chair: A.Yu.Smolin</p>
15:30 – 15:55	<p><u>R.R. Balokhonov</u>, V.A. Romanova A numerical-experimental analysis of deformation and fracture in an Al-Si alloy fabricated by electron beam wire-feed additive manufacturing Institute of Strength Physics and Materials Science, Siberian Branch of the Russian Academy of Sciences, Tomsk, Russia</p>
15:55 – 16:20	<p>S.V. Fedorov Structural-energy evolution of friction contact, elementary tribosystem and mechanical (nano) quantum Kaliningrad State Technical University, Russia</p>
16:20 – 16:45	<p>K. Mamasoliev ¹, M. Mirsaidov ² Mathematical model and analytical solution of the contact problem on the bending of a plate laying on a nonhomogeneous combined base ¹ Samarkand State University of Architecture and Construction; ² National Research University - Tashkent University of Irrigation and Agricultural Mechanization Engineers; ³ Institute of Mechanics and Seismic Stability of Structures of the Academy of Sciences of the Republic of Uzbekistan.</p>
16:45 – 17:05	<p>V.P. Kuznetsov, <u>I.A. Vorontsov</u>, M.S. Karabanalov, M.S. Khadyev Hardening of the surface layer of X20Cr13 steel by alloying with WC-Co tool material through friction stir processing Ural Federal University, Yekaterinburg, Russia</p>

September 06

	<p>Chair: M.Mirsaidov</p>
9:00 - 9:20	<p>A. Yuldashev, D. Kuldoshev, N. Djuraeva, A. Urinov, M. Mirzaeva Theoretical justification of deformation process and the soil movement in the area affected on chisel plow Institute of Mechanics and Seismic Stability of Structures of the Academy of Sciences of the Republic of Uzbekistan, Tashkent, Uzbekistan</p>
9:20 – 9:40	<p>R. Indiaminov ¹, A. Narkulov ¹, A. Abdullaev ², R. Butaev ³, J. Shodmonov ⁴ Magnetoelastic deformation of nonferromagnetic thin plates in a nonstationary magnetic field ¹ Samarkand branch of the Tashkent University of Information Technologies, Samarkand, ² Tashkent University of Information Technologies, Tashkent, ³ Jizzakh State Pedagogical Universities, Jizzakh, ⁴ Kattakurgan branch of Samarkand State University, Kattakurgan, Uzbekistan</p>

9:40 -10:00	R.A. Abirov On strength of materials with initial crack <i>Institute of mechanics and earthquake engineering, Tashkent, Uzbekistan</i>
10:00 – 10:20	G.M. Panahov, E.M. Abbasov*, I.J. Mammadov Diffusive mass transfer in porous media during in-situ gas generation <i>Institute of Mathematics and Mechanics, Ministry of Science and Education of Azerbaijan Republic</i>
10:20 – 10:50	<i>Coffee break</i>
	<i>Chair: R.A. Abirov</i>
10:50 – 11:10	V.P. Kuznetsov, A.S. Skorobogatov, <u>G.S. Anisimova</u> Impact of heat removal from the sliding indenter contact zone on the coefficient of friction and structure formation during the nanostructuring burnishing of X20Cr13 steel <i>Ural Federal University, Yekaterinburg, Russia</i>
11:10 – 11:30	V.P. Kuznetsov ¹ , <u>I.V. Tatarintsev</u> ² , A.V. Korelin ¹ Analysis of power spectrum density for controlling a multi-transition finishing of frictional surfaces by burnishing and micro cavities deformation <i>¹ Ural Federal University, Yekaterinburg, Russia ² Kurgan State University, Kurgan, Russia</i>
11:30 – 11:50	<u>A. Polatov</u> , A. Ikramov Effect of geometric features on the stress state of unidirectional composites <i>National University of Uzbekistan, Tashkent, Uzbekistan</i>
11:50 – 12:10	N. Tursunov The Steel dephosphorization process research for railway castings in an induction crucible furnace <i>Materials Science and Mechanical Engineering Department, Tashkent State Transport University, Uzbekistan</i>
12:10 – 13:40	<i>Lunch</i>
	<i>Chair: Z.M. Malikov</i>
13:40 - 14:00	A.M. Shukurov Non-stationary vibrations of a thick-wall elastic spherical shell in acoustic half-space <i>Karshi State University, Karshi, Uzbekistan</i>
14:00 - 14:20	O. Zhelezkov, E. Martynov, M. Kharchenko, R. Dema Prediction of the "Screw-nut" gear life <i>Magnitogorsk state technical University named after G. I. Nosov, Magnitogorsk, Russia</i>
14:20 – 14:40	M.M. Mirsaidov ^{1,2} , <u>A.N. Ishmatov</u> ¹ , B.Kh. Urinov ¹ , I.A.Khazratkulov ¹ Evaluation of nonlinear oscillations of plane structures with consideration of internal dissipation <i>¹ National Research University - Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, Tashkent, Uzbekistan; ² Institute of Mechanics and Seismic Stability of Structures, Academy of Sciences of the Republic of Uzbekistan, Tashkent, Uzbekistan.</i>
14:40 – 15:10	<i>Coffee break</i>
	<i>Chair: I.Mirzayev</i>
15:10 – 15:30	Z.M. Malikov ¹ , F.Kh. Nazarov ¹ , <u>M.E. Madaliev</u> ¹ , D.P. Navruzov ² Numerical investigation of the turbulent structure in the NACA0012 aerodynamic air-flow wake at low Reynolds numbers on the basis of a two fluid model <i>¹ Institute of Mechanics and Seismic Stability of Structures of the Academy of Sciences of the Republic of Uzbekistan ² Bukhara Institute of Natural Resources Management, National Research University "TI-IAME", Bukhara, Uzbekistan</i>

15:30 – 15:50	<p>Z.M. Malikov ¹, D.P. Navruzov ², <u>M.E. Madaliev</u> ¹, N.Sh. Hamroyev ²</p> <p>Simulation of swirling jet flows based on two fluid turbulence model</p> <p>¹ <i>Institute of Mechanics and Seismic Stability of Structures of the Academy of Sciences of the Republic of Uzbekistan</i></p> <p>² <i>Bukhara Institute of Natural Resources Management, National Research University "TI-IAME", Bukhara, Uzbekistan</i></p>
15:50 – 16:10	<p>M. Mirsaidov^{1,2}, O. Dusmatov³ and <u>M. Khodjabekov</u>⁴</p> <p>Stability of longitudinal vibrations of a rod with a liquid section dynamic absorber</p> <p>¹ <i>National Research University - Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, Tashkent, Uzbekistan</i></p> <p>² <i>Institute of Mechanics and Seismic Stability of Structures of the Academy of Sciences of the Republic of Uzbekistan, Tashkent, Uzbekistan</i></p> <p>³ <i>Samarkand State University, Samarkand, Uzbekistan</i></p> <p>⁴ <i>Samarkand State University of Architecture and Construction named after Mirzo Ulug'bek, Samarkand, Uzbekistan</i></p>
16:10 – 16:20	<p><i>Closing</i></p>