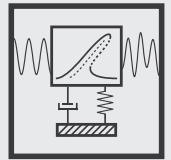


Mechanical Engineering

Multidisciplinary Engineering

Materials Science and Technology

Vibroengineering Procedia



VP Vibroengineering PROEDIA

Vibroengineering PROEDIA Volume 62 contains papers presented at the 76th International Conference on Vibroengineering in Tashkent, Uzbekistan, April 28-29, 2026. The main theme of the Conference is “Seismic Safety, Construction Digitalization and Sustainable Engineering”.

Aims and Scope

Journal publishes original papers presenting the state of the art in vibroengineering of dynamical systems.

The list of principal topics:

- Measurements in engineering
- Mathematical models in engineering
- Acoustics, noise control and engineering applications
- Mechanical vibrations and applications
- Fault diagnosis based on vibration signal analysis
- Vibration control, generation and harvesting
- Seismic engineering and applications
- Modal analysis and applications
- Vibration in transportation engineering
- Flow induced structural vibrations
- Oscillations in biomedical engineering
- Chaos, non-linear dynamics and applications
- Oscillations in electrical engineering
- Fractional dynamics and applications
- System dynamics in manufacturing system modeling
- Dynamics of smart and functionally graded materials

All published papers are peer reviewed and crosschecked by plagiarism detection tools.

More information is available online <https://www.extrica.com/journal/vp>

Vibroengineering PROEDIA is referred in:

Scopus: ELSEVIER Bibliographic Database.

EI Compendex: ELSEVIER Bibliographic Database.

EBSCO: Academic Search Complete;
Computers & Applied Sciences Complete;
Central & Eastern European Academic Source;
Current Abstracts;
TOC Premier.

Gale Cengage Learning:
Academic OneFile Custom Periodical;
Science in Context.

ResearchGate: <https://www.researchgate.net>

Scilit: <https://www.scilit.net>

Dimensions: <https://www.dimensions.ai>

Semantic Scholar: <https://www.semanticscholar.org>

Google Scholar: <https://scholar.google.com>

CORE: <https://core.ac.uk>

Ulrich's Periodicals Directory: <https://ulrichsweb.serialssolutions.com>

CNKI Scholar: <http://eng.scholar.cnki.net>

cnplINKer (CNPIEC): <http://cnplinker.cnpeak.com>

WanFang Data: <https://www.wanfangdata.com.cn>

TDNet: <https://www.tdnet.io>

WorldCat Discovery Services: <https://www.oclc.org/en/worldcat-discovery.html>

Crossref: <https://search.crossref.org>

Content is archived in **Martynas Mazvydas National Library of Lithuania**

Internet: <https://www.extrica.com>

E-mail: publish@extrica.com

Publisher: Extrica

76th International Conference on VIBROENGINEERING

April 28-29, 2026, in Tashkent, Uzbekistan

The main theme of the conference: **Seismic Safety, Construction Digitalization and Sustainable Engineering**

General Topics of the Conference:

- Mechanical vibrations and applications
- Fault diagnosis based on vibration signal analysis
- Seismic engineering and applications
- Vibrations in transport engineering
- Vibration control, generation and harvesting
- Acoustics, noise control and engineering applications
- Flow induced structural vibrations
- Modal analysis and applications
- System dynamics in manufacturing system modelling
- Materials and measurements in engineering
- Mathematical models in engineering
- Vibration Engineering
- Robotics and Mechatronics
- Vibration problems in smart Transportation Systems and Logistics
- Energy (topics related to vibroengineering)
- Artificial Intelligence and Machine Learning in vibroengineering
- Signal Processing and electronic circuits (topics related to vibroengineering)
- Electronics and power Systems (topics related to vibroengineering)
- Data analysis and visualization (topics related to vibroengineering)

Chair:

Abdulaziz Abdullayevich Gulamov Tashkent State Transport University

Scientific Committee Members

| | |
|------------------------|--|
| Ilbrakhim Mirzaev | Applied Mechanics, Tashkent State Transport University |
| Nodirjon Tursunov | Head of the Department of Materials Science and Mechanical Engineering |
| Salokhiddin Z. Yunusov | Department of Materials Science and Mechanical Engineering |
| Khurshidbek Nurmetov | Department of Materials Science and Mechanical Engineering |
| Nozima Khusnidinova | Department of Radio Electronic Devices and Systems |
| Odiljan Turdiev | Departments of Information Systems and Technologies in Transport |
| Akmal Mukhitdinov | Professor of Vehicle Engineering Department |
| Ruslan Khakimzyanov | Department of Automotive and Manufactured engineering |
| Samandar Komilov | Department of Technological Machine Engineering |
| Bobomurod Rakhmonov | Department of Automation and Remonte Control |
| Altinbek Lesov | Electric Rolling Stock, Tashkent State Transport University |
| Fakhriiddin Zokirov | Bridges and Tunnels, Tashkent State Transport University |
| Ravshanjon Akhmatjanov | Head of the Department of Transport Energy Devices |
| Natalya Yaronova | Professor Department of Radio Electronic Devices and Systems |

Organizing Committee Members

| | |
|-------------------------------|--|
| Said Sanatovich Shaumarov | Vice-rector for Scientific Affairs and innovation |
| Miraziz Mirkadirovich Talipov | Head of the Scientific Publications Department |
| Avaz Mirsultanovich Merganov | Innovation and Scientific-Pedagogical Personnel Training |
| Diyorbek A. Bekmirzayev | Cabinet of Ministers of the Republic of Uzbekistan |
| Ganisher Malikov | Tashkent State University of Transport |
| Otakhon Ruzimov | Department of Radioelectronic Devices and Systems |
| Aliye Ayderovna Ablayeva | Department of Radioelectronic Devices and Systems |

VP Vibroengineering PROCEDIA

JUNE 2026. VOLUME 62, PAGES (1-738), ISSN PRINT 2345-0533, ISSN ONLINE 2538-8479

Contents

MECHANICAL VIBRATIONS AND APPLICATIONS

| | |
|---|-----------|
| INFLUENCE OF ELASTIC ELEMENT PARAMETERS ON STRESS DISTRIBUTION AND REACTION FORCES IN SHAFT SUPPORT SYSTEMS OF SAWING CYLINDERS SHAKHNOZA MAKHMUDOVA, GULNORA YULDASHEVA, FERUZA AZIMOVA, DILAFRUZ AKHMEDOVA | 1 |
| LOCOMOTION ANALYSIS OF A PANTOGRAPH-BASED ADAPTIVE WALL-PRESSING IN-PIPE ROBOT WITH A SLIDER-CRANK DRIVE AND OVERRUNNING CLUTCHES VITALIY KORENDIY, MAKSYM-PAVLO ZELINSKYI, TARAS VILCHYNSKYI, ROSTYSLAV PREDKO, VIKTOR LOZYSKYI, NATALIYA HEMBARA | 9 |
| MOVABLE FEM NODES IN THE PROBLEM OF INTERACTION BETWEEN A MOVING MASS AND A PRESTRESSED BEAM IBRAKHIM MIRZAEV, DILBARKHON ASKAROVA | 18 |
| CRITICAL SPEED AND FORCED VIBRATION ANALYSIS OF ROTOR-BEARING SYSTEMS WITH ASYMMETRIC ELASTIC BEARINGS SHAKHNOZA MAKHMUDOVA, G'ULOM SHAMANOV, SHODIYA MURTOZOYEVA | 24 |
| PARAMETRIC VIBRATIONS OF A CLAMPED REINFORCED VISCOELASTIC COMPOSITE PLATE BAKHTIYOR ESHMATOV, MIRZIYOD MIRSAIDOV, ABDURAHMON RAYIMOV, ZULAYKHO ESHMATOVA | 34 |
| TRAJECTORY-BASED SYNTHESIS OF A THREE-MASS VIBRATORY SYSTEM EXCITED BY A DUAL PHASE-CONTROLLED CRANK-SLIDER MECHANISM VITALIY KORENDIY, OLEKSANDR YANIV, ROSTYSLAV PREDKO, IHOR LAUSHNYK, ANDRIY DZYUBYK, SERHII HREVTSOV | 41 |
| MODELING OF A PERFORATED PLATE WITH HYSTERESIS TYPE CHARACTERISTICS UNDER KINEMATIC EXCITATIONS MURADJON KHODJABEKOV, AZAMAT OTAQULOV | 51 |

FAULT DIAGNOSIS BASED ON VIBRATION SIGNAL ANALYSIS

| | |
|---|-----------|
| AI-ASSISTED VIBRATION-BASED FAULT DIAGNOSIS OF IGBT MODULES IN ELECTRIC VEHICLES | 58 |
|---|-----------|

FOZIL KHASANOV, LATOFAT KHALIKOVA, AZIZA YULDASHEVA

VIBRATION CONTROL, GENERATION AND HARVESTING

| | |
|---|-----------|
| MATHEMATICAL MODELING OF CONTROLLED VIBRATION MECHANISMS | 65 |
|---|-----------|

K. A. KARIMOV, A. KH AKHMEDOV

| | |
|---|-----------|
| SIMULATION AND PERFORMANCE EVALUATION OF AN ENERGY-REGENERATIVE SUSPENSION SYSTEM BASED ON A QUARTER-CAR MODEL | 75 |
|---|-----------|

KHAC TUAN NGUYEN, DUY HUNG MAC, DUC HOANG TRAN,
KHAC MINH NGUYEN

SEISMIC ENGINEERING AND APPLICATIONS

| | |
|--|-----------|
| DYNAMIC PERFORMANCE ANALYSIS OF A VIBRATION-SEISMIC CONTROL SYSTEM FOR A METRO-ADJACENT THEATRE | 82 |
|--|-----------|

YANYAN HAN, XINGLIANG GAO, DIANLONG SUN, QINGHAI SUI, JIANLI WANG,
ZI'ANG KONG

| | |
|---|-----------|
| STRUCTURAL ASSESSMENT AND FINITE ELEMENT MODELING OF THE VOLAIDAI ABDULAZIZKHAN MOSQUE IN THE BUKHARA REGION USING LIRA-SAPR | 92 |
|---|-----------|

ZULFIYA KHODJAEVA, LOLA USMANKHODJAEVA, KAROMAT SHUKUROVA,
MAKHLIYA UTEGENOVA, DILDORA SAYDULLAEVA

| | |
|---|------------|
| ESTIMATION OF A MONOLITHIC REINFORCED CONCRETE OVERPASS UNDER THE SEISMIC EFFECT | 100 |
|---|------------|

ULUGBEK SHERMUKHAMEDOV, DIYORBEB BEKMIRZAEV, SAID SHAUMAROV,
ANORA KARIMOVA, ABDURAKHIM ABDULLAEV, XIN LIANG

| | |
|--|------------|
| DYNAMIC AND SEISMIC ANALYSIS OF ROOFTOP GREENHOUSE STRUCTURES ACCORDING TO QMQ 2.01.03-19 | 107 |
|--|------------|

BEKZOD ABDUKARIMOV, MIRKOMIL HAKIMOV, MIRZOHID SODIQOV,
ASROR RASULOV

| | |
|---|------------|
| EFFICIENCY OF TYPES OF REINFORCEMENT SYSTEMS FOR EXISTING FOUNDATIONS (FOOTINGS AND PILES) | 113 |
|---|------------|

KWANGYEOL LEE, ASKAR ZHUSSUPBEKOV, ABDULAZIZ GULAMOV,
SAID SHAUMAROV, MIRAZIZ TALIPOV, DAULET KHADIM

| | |
|---|------------|
| SEISMIC PERFORMANCE OF RAILWAY TRACK STRUCTURES WITH REDUCED DYNAMIC STIFFNESS IN WEAK AND COMPLEX SOIL CONDITIONS | 120 |
|---|------------|

ABDUKHAMIT ABDUJABAROV, MASHKHURBEK MEKHMUNOV,
MAQSUDJON KHAMIDOV, FARKHOD ESHONOV, AUYEZMURAT YEMBERGENOV

| | |
|---|------------|
| DYNAMIC INTERACTION OF BRIDGE SPANS AND PIERS AS A TUNED SYSTEM FOR SEISMIC LOAD REDUCTION | 126 |
|---|------------|

ZIYOVUDDIN RAKHIMJONOV, FAKHRIDDIN ZOKIROV, ARTANTI LINTANG

| | |
|--|------------|
| FREQUENCY-DEPENDENT DEGRADATION OF COHESION AND DEFORMATION BEHAVIOR IN MOIST LOESS SOILS | 134 |
|--|------------|

GAYRAT KHAKIMOV, KHADICHA ABDURAIMOVA, SAYYORA TADJIKHODJAEVA,
MAKHSUDALI QAMBAROV, ABDUKAYUM BERDIMURODOV, GANISHER MALIKOV

| | |
|---|------------|
| METROLOGICAL CALIBRATION AND UNCERTAINTY EVALUATION OF MEMS ACCELEROMETERS FOR STRUCTURAL HEALTH MONITORING IN SEISMIC REGIONS | 140 |
| AKMALJON MAMATOV, XUSNIDDIN SOTVOLDIYEV, MIRAZIZ TALIPOV, SAID SHAUMAROV, KONUL GAFARBAYLI, DIYORBEB BEKMIRZAEV | |
| A MODERN METHOD FOR REINFORCING TRANSITION ZONES ON HIGH-SPEED RAILWAY SECTIONS, ACCOUNTING FOR SEISMIC AND TRAIN-INDUCED VIBRODYNAMIC OSCILLATIONS | 145 |
| ABDUKHAMIT ABDUJABAROV, MASHKHURBEK MEKHMUNOV, PARDABOY BEGMATOV, FARKHOD ESHONOV, MAQSUDJON KHAMIDOV | |
| MODELING SEISMIC-ISOLATED BUILDINGS BY THE CONCENTRATED DEFORMATION METHOD | 152 |
| RAKHMATULLO PIRMATOV, NIZOMOV JAKHONGIR, KALANDARBEBOV IMOMERBEK, KALANDARZODA IFTIKHOR | |
| METHODOLOGY OF EXPERIMENTAL RESEARCH ON INCREASING THE STABILITY OF WATER-CONDUCTING PIPES UNDER THE INFLUENCE OF SEISMIC FORCES | 161 |
| ABDUKHAMIT ABDUJABAROV, MUSA ZHALALDINOV, MASHKHURBEK MEKHMUNOV, PARDABOY BEGMATOV, MAQSUDJON KHAMIDOV | |
| ENSURING THE STABILITY OF RAILWAY SUBGRADE USING GEOTEXTILE MATERIALS ON HIGH-SPEED RAIL SECTIONS | 168 |
| PARDABOY ABDURAKHIMOVICH BEGMATOV, SHERZOD AMIRQULOVICH TAJBAYEV, JAMSHIDBEK BAXODIR YULDASHALIYEV, FARKHOD FAYZULLAYEVICH ESHONOV, SHOHJAKHON MUHAMMADROZI UMARALIYEV | |
| STRUCTURAL PERFORMANCE OF TUNNEL LININGS UNDER TECTONIC FAULT DISPLACEMENT | 176 |
| NE'MATJON MUKHAMMADIYEV, NURALI KHASANOV, VLADIMIR SOY, MIRZOKHAYOT MEHRUBONOV, GANISHER MALIKOV | |
| FINITE-DIFFERENCE ANALYSIS OF SEISMIC RESPONSE IN CONNECTED UNDERGROUND AND ABOVEGROUND PIPELINES | 183 |
| IBRAKHIM MIRZAEV, JAKHONGIR SHOMURODOV, MALIKJON TURDIEV, NODIRBEK RAKHMATOV | |
| ASSESSING THE SEISMIC VULNERABILITY OF SINGLE-FAMILY RESIDENTIAL BUILDINGS IN THE KHOREZM REGION | 189 |
| RAVSHAN SAVUTOV, ALISHER SHAMURATOV, VAKHITKHAN ISMAILOV, SHAROFIDDIN YODGOROV, AKBARJON ABDUNAZAROV | |
| STABILITY ASSESSMENT OF RAILWAY SUBGRADE SLOPES UNDER EARTHQUAKE-INDUCED INERTIAL LOADING | 195 |
| MASHKHURBEK MEKHMUNOV, MAQSUDJON KHAMIDOV, FARKHOD ESHONOV, NURALI AKHMEDOV, SAULET SHAYAKHMETOV | |
| NONLINEAR DYNAMIC ANALYSIS OF DAM-FOUNDATION INTERACTION UNDER NEAR-FAULT SEISMIC LOADING | 202 |
| A. N. ISHMATOV, M. M. MIRSAIDOV, A. S. BYKOVTSSEV, B. KH URINOV, B. SH YULDOSHEV, I. A. KHAZRATKULOV | |
| STABILITY OF EMBANKMENT SLOPES IN SANDY SOILS REINFORCED WITH GEOSYNTHETIC MATERIALS | 209 |
| KUVANDIK LESOV, SHERZOD TADJIBAEV, RONGSHAN YANG, MUKHAMEDALI KENJALIYEV, ULUGBEK ERGASHEV, NODIR BEGMATOV | |

| | |
|---|------------|
| SEISMIC PERFORMANCE AND DEFORMATION CHARACTERISTICS OF LOW-RISE SIP PANEL TIMBER BUILDINGS | 217 |
| NURPOLAT KOSBERGENOV, SOBIRJON RAZZAKOV, ABDURASUL MARTAZAEV, AMANBAY ARZIEV, DAURANBEK TORESHOV, AYBEK ALIMBAEV, RAUSHAN MADIYAROVA | |
| MODAL ANALYSIS AND APPLICATIONS | |
| DYNAMICS OF STRUCTURALLY INHOMOGENEOUS SHELL STRUCTURES | 224 |
| SHERZOD KHUDAINAZAROV, BURKHON DONAYEV, OLIYA NUROVA, TALIBJAN SABIRJANOV, OZODA KHAYDAROVA | |
| VIBRATION IN TRANSPORTATION ENGINEERING | |
| MONITORING RESULTS OF THE RAILWAY BRIDGE: VIBRATION OF DECKING STRUCTURES UNDER FORCED VIBRATION OF PASSING TRAINS | 231 |
| SHAKHZOD TAKHIROV, DIYORBEB BEKMIRZAEV, SAID SHAUMAROV, IBRAKHIM MIRZAEV, ULUGBEK SHERMUKHAMEDOV, ZUKHRITDIN ERGASHEV, ABDURAKHIM ABDULLAEV | |
| VIBRATION PERFORMANCE ASSESSMENT AND MODEL ORDER REDUCTION OF POWER ELECTRONIC MODULES UNDER REALISTIC REGIONAL ROAD EXCITATION PROFILES | 238 |
| GULCHEKHRA ATAeva, ZEBO ABDURAKHMONOVA, LILIYA FILIMONOVA, SHAKHNOZA SHADIYEVA | |
| EVALUATION OF THE STRENGTH CHARACTERISTICS OF THE MODERNISED DESIGN OF THE PASSENGER CAR BOGIE FRAME | 246 |
| RUSTAM RAHIMOV, OLMOS ZAYNITDINOV, DIYOR ZAFAROV, AKMAL ABIDOV | |
| ASSESSMENT OF VEHICLE-INDUCED ACOUSTIC AND VIBRATIONAL IMPACTS ON THE HUMAN BODY | 252 |
| QAHRAMON XUSHVAKTOVICH ERGASHEV, REYHAN AKBARLI | |
| METHODOLOGY FOR MEASURING DYNAMIC RESPONSE OF RAILWAY TRACK COMPONENTS AT RAIL JOINTS | 261 |
| MASHKHURBEK MEKHMUNOV, MAQSUDJON KHAMIDOV, FARKHOD ESHONOV, MAVJUDA MIRKHANOVA, JAMSHIDBEK YULDASHALIYEV | |
| DYNAMIC MODELING AND OPTIMIZATION OF FREIGHT VEHICLE SUSPENSION SYSTEMS UNDER VIBRATION-INDUCED FATIGUE | 267 |
| KAMOLIDDIN RUSTAMOV, NODIRA RUSTAMOVA, KAVŠEK BRANKO | |
| STUDY ON THE DEFLECTION OF EARLY-STRENGTH SPLICE JOINTS IN WIDENED BRIDGES UNDER VEHICLE LOADS | 274 |
| XUDONG JIA, YAORYANG LIU, YIBO LIAO, MINHAO SHI, XU HAN, ZHIDONG LIU, HAN SU | |
| MATERIALS AND MEASUREMENTS IN ENGINEERING | |
| STRUCTURAL AND RHEOLOGICAL DESIGN OF SELF-COMPACTING FINE-GRAINED CONCRETE FOR VIBRATION-FREE CASTING | 281 |
| ANVAR ADILKHODZHAEV, BAKHRIDDIN KHASANOV, ILKHOM KADYROV, MIRZOKHID RADJABOV, ISOMIDDIN UMAROV, B. K. SARSENBAYEV | |

| | |
|---|------------|
| PERFORMANCE OPTIMIZATION OF CONCRETE MODIFIED WITH VOLCANIC ASH-BASED COMPOSITE ADHESIVE AND FINELY DISPERSED MINERAL FILLERS | 289 |
| TURSOAT AMIROV, KHOJIAKMAL ARIPOV, ABDUSALOM DJUMAYEV, MAJIDBEK JUMOGULOV, ABBAS GUALOV, SAIDA ABBASOVA, ILHOM KADIROV | |
| SYNERGISTIC EFFECT OF BINARY FILLER SYSTEMS ON THE MICROSTRUCTURAL STABILITY AND DYNAMIC STRENGTH OF HIGH-PERFORMANCE CEMENT BINDERS | 295 |
| ANVAR ADILKHODJAEV, ILKHOM KADIROV, SAIDMURAD NIYAZBEKOV, FARKHOD ABDUKADIROV, ABBAS GUALOV | |
| PERFORMANCE OPTIMIZATION OF CONCRETE MODIFIED WITH COMPOSITE ADHESIVE INCORPORATING FINELY DISPERSED VOLCANIC ASH | 304 |
| A. A. GUALOV, S. I. ABBASOVA, N. Z. AHMADLY, ILKHOM KADIROV, DILSHOD IMAMALIEV | |
| EFFECT OF HEAT TREATMENT PARAMETERS ON THE MICROSTRUCTURE AND HARDNESS OF STEEL 45 PRODUCED BY THE ELECTROSLAG REMELTING PROCESS | 310 |
| ELENA RUKLINSKAYA, MUZAFFAR UBAYDULLAEV, UMIDBEK KOSIMOV, ALISHEROVA KSENIYA | |
| SOME ISSUES OF FORECASTING CRACK FORMATION ON AUTOMOBILE ROADS | 318 |
| MUZAFFAR MAMATKULOV, SHAXNOZA XALIMOVA | |
| LOW-VELOCITY IMPACT POSITIONING ON COMPOSITE HONEYCOMB PANELS USING A DPL-R REGRESSION | 325 |
| ZHAOYU ZHENG, YE HE, JUNSHAN WANG, YAN TANG, SHENZHEN TIAN | |
| INCREASING THE REMAINING USEFUL LIFE OF ASPHALTIC CONCRETE COATINGS BY IMPROVING THE TECHNOLOGY OF ROAD REPAIR | 331 |
| REYHAN SAYYAD AKBARLI, RAMAZON JUMA O'G'LI QULMAMATOV, NOZIMA SHAVKATOVNA AMANOVA, SUXROB SOLI O'G'LI RAXMATOV, TEMUR SHUXRAT O'G'LI BOBONAZAROV | |
| DETERMINATION OF THE DESIGNED DEFORMATION PROPERTIES OF SOILS UNDER RADIAL STRESSES INSIDE THE BOREHOLE | 339 |
| ASKAR KHASANOV, NIGORA NABIYEVA | |
| THE EFFECT OF POLYPROPYLENE FIBRE AND SILICA FUME ON THE PROPERTIES OF TUNNEL SLAG SHOTCRETE | 349 |
| GAOQUAN JU, JINPENG LU, LIPING DANG | |
| IMPROVING THE MECHANICAL PROPERTIES OF GRADE 45 STEEL AND EVALUATING THE FEASIBILITY OF USING CR-MO STEELS FOR BALL ROLLING MILL GUIDE SHOES | 356 |
| MUZAFFAR UBAYDULLAEV, ELENA RUKLINSKAYA, UMIDBEK KOSIMOV, UTKIR KHALIKULOV, ARSEN ANANYAN | |
| VIBRO-MECHANICAL ENERGY MODELING OF LIMESTONE SCREENINGS GRINDING FOR TRANSPORT MATERIALS | 363 |
| ILYAS RUSTEMOV, DARKHAN YELEMES, ARLAN KAZHETAYEV, BAKHYZZHAN ABIYEV, MUSSIN KYDYRZHAN, RASHIDBEK HUDAYKULOV, BARNO SALIMOVA, FERUZA IKRAMOVA, DILSHOD ARALOV | |
| EXPERIMENTAL EVALUATION OF BASALT FIBER MICRO-REINFORCEMENT ON STRENGTH AND CRACK RESISTANCE OF FINE-GRAINED CONCRETE FOR PAVEMENTS | 369 |
| TURSOAT AMIROV, SUKHROB RAKHMATOV, MAJIDBEK JUMOGULOV, BOBOMUROD QURBONOV | |

| | |
|--|------------|
| PRECAST-MONOLITHIC BEAM REINFORCED CONCRETE FLOORS WITH AERATED CONCRETE BLOCKS | 375 |
| IBROHIM ABDULLAYEV, ELMUROD YUNUSALIEV, ZOKIR ALAKHANOV, XUSANBOY MUKHAMMADYOQUBOV | |
| NANOSCALE SIZE CRITERION FOR MODIFIER SELECTION IN POLYMER COMPOSITES FOR VIBRATION DAMPING | 381 |
| ALEXANDER ANTONOV, MURODJON RAKHMATOV, KHURSHIDBEK NURMETOV, ALIMJON RISKULOV, VASILY STRUK, KAZIMIR ZNOSKO | |
| INTERFACIAL LAYER FORMATION AND THERMAL TRANSPORT MECHANISMS IN POLYMER NANOCOMPOSITES FOR VIBRATION-DAMPING APPLICATIONS | 387 |
| ALEXANDER ANTONOV, KHURSHIDBEK NURMETOV, ALIMJON RISKULOV, VASILY STRUK, ALEXANDER NIKITIN, ZIARAT PASHAYEVA | |
| DEVELOPMENT OF WATER-RESISTANT MODIFIED FIBER-REINFORCED CONCRETE | 396 |
| KHAYALA JAMALOVA, TAHIRA HAGVERDIYEVA, AMIROV TURSOAT, QURBONOV BOBOMUROD, SUKHROB RAKHMATOV, AMANOVA NOZIMA | |
| CRACK INVESTIGATION ON AUTOMOBILE ROADS IN TASHKENT REGION | 403 |
| MUZAFFAR MAMATKULOV, SHAXNOZA XALIMOVA, YURIY GEORGOVICH BABASKIN | |
| OPTIMIZATION OF POLYMER-SULFUR ASPHALT CONCRETE COMPOSITION FOR HIGH-TEMPERATURE PAVEMENT APPLICATIONS | 410 |
| ALISHER MAMATMUMINOV, IBRAGIM SADIKOV, YURIY VASILYEV, ELYOR SOTTIQULOV, BAXROM TOVBOYEV, SUXROB TILAKOV | |
| EFFECT OF BINARY MICROFILLERS ON HYDRATION KINETICS AND MICROSTRUCTURE DEVELOPMENT OF CEMENT BINDERS IN SEISMIC AREAS | 416 |
| ULUGBEK ABDULLAEV, SHUXRAT ESHBEKOV, XIAOKANG ZHAO | |
| EFFECTS OF A BINARY MICROFILLER-BASED SUPERPLASTICIZER ON THE WORKABILITY, STRENGTH, AND DURABILITY OF CONCRETE | 423 |
| ULUGBEK ABDULLAEV, ERKIN KAXAROV, XIAOKANG ZHAO, WANG ZHIYU | |
| COMPREHENSIVE STUDY OF WEAR RESISTANCE OF COATINGS FORMED ON THE SURFACE OF CAST PARTS UNDER ABRASIVE WEAR | 430 |
| NURKHON BEKMURZAEV | |
| CORRELATION BETWEEN CARBIDE MORPHOLOGY AND MECHANICAL PROPERTIES OF 35XMA STEEL UNDER MULTI-STAGE THERMAL EXPOSURE | 439 |
| MUZAFFAR UBAYDULLAEV, ELENA RUKLINSKAYA, UMIDBEK KOSIMOV, UTKIR KHALIKULOV, EMIR MUSAEV | |
| IMPROVEMENT OF THE PHYSICAL AND MECHANICAL PROPERTIES OF CRUSHED STONE USED IN THE CONSTRUCTION OF ASPHALT CONCRETE PAVEMENTS | 445 |
| RAKHIMJON SOATALIYEV, DILSHADBEK YULDASHBAEV | |
| THE IMPACT OF WIND EROSION ON THE RAILWAY SUBGRADE | 452 |
| KUVANDIK LESOV, AKMAL URALOV, MUKHAMEDALI KENJALIYEV, NODIR BEGMATOV, OZODA MIRZAKHIDOVA | |
| IMPACT BEHAVIOR OF SELF-COMPACTING BASALT FIBER-REINFORCED CONCRETE WITH A ZEOLITE-QUARTZ COMPOSITE BINDER | 461 |
| IRKIN MAKHAMATALIEV, V. M. SOY, NEMAT MUHAMMADIEV, AZAMAT KHUDOYOROV, SHERBEK UZAKOV, ARTANTI LINTANG | |

| | |
|---|------------|
| COUPLED EFFECTS OF MOISTURE, SALINITY, AND FILTRATION ON SOIL STRENGTH FOR ENGINEERING-GEOLOGICAL INVESTIGATIONS | 468 |
| BAKHTIYOR MURTAZAEV, OLMOS ZAFAROV, JURABEK RAVSHANOV, AZIZBEK UZOKBAEV, SHOKHRUKH KUSHMURODOV | |
| MODELING AND OPTIMIZATION OF IMPACT TOUGHNESS IN TANTALUM OXIDE-MODIFIED AL-SI ALLOYS | 476 |
| SARVAR TURSUNBAEV, SHERZOD TASHBULATOV, SHOHRUH HUDOYKULOV, NIGORA RIZAEVA, MUKHLISAKHON ABDURAKHMONOVA, MOHICHEKHRA BOLTAEVA | |
| THE FORMATION OF SELF-COMPACTING BASALT FIBER CONCRETE BASED ON A COMPOSITE BINDER | 482 |
| IRKIN MAKHAMATALIEV, FAZLIDDIN RUZMETOV, AZAMAT KHUDOYOROV, SHERBEK UZAKOV, ARTANTI LINTANG | |
| STUDY ON THE SOUND ATTENUATION COEFFICIENT OF O₂ IN POWER PLANT FURNACE BASED ON LAMMPS | 489 |
| YUNFENG WANG, YUECHAO LIU | |
| EXPERIMENTAL EVALUATION OF DYNAMIC CHARACTERISTICS OF STRAIN GAUGE PRESSURE TRANSDUCERS UNDER PULSED VIBRATION EFFECTS | 496 |
| KAMILA JURAYEVA, ZAMIRA NAZIROVA, KHURSHID SATTAROV | |
| PHASE COMPOSITION AND STRUCTURAL FEATURES OF ION-PLASMA TITANIUM CARBIDE-BASED COATINGS | 501 |
| KUTPINISA KADIRBEKOVA, SERGEY STOIKO, SERGEY VASILEVICH, SHAKHNOZAKHON ERMUKHAMEDOVA | |
| OPTIMIZATION OF AERATED CONCRETE COMPOSITION WITH LOCAL MATERIALS: EFFECTS ON DENSITY AND STRENGTH | 508 |
| TURGUNBAYEV URINBEK, SHARIPOVA DILAFRUZ, ABDULLAYEVA DJAMILYA, ARTANTI LINTANG | |
| OPTIMIZATION OF COMPOSITIONS OF HIGH-STRENGTH POLYMER-CEMENT ADHESIVE MATERIAL USING DRY CONSTRUCTION MIXTURE TECHNOLOGY | 516 |
| TURGUNBAYEV URINBEK, BERDIEV OBLOKUL, KAXAROV ERKINJAN, ABDULLAYEVA DJAMILYA, KHASANOV NURALI | |
| MAGNETOSTRUCTURAL PHASE TRANSITIONS IN PHOSPHOR-CONTAINING MANGANESE ARSENIDE CRYSTALS | 523 |
| U. T. BERDIYEV, M. M. MATQOSIMOV, M. X. XAYDAROV, T. M. TKACHENKO, S. M. BARAYSHUK, A. V. GOLOVCHAN, S. G. ANIKEEV, A. M. ZHIVULKA, A. V. GURBANOVICH, A. L. ZHELUDKEVICH, V. I. MITYUK | |
| MECHANICAL AND MOISTURE PERFORMANCE OF ASPHALT CONCRETE CONTAINING POLYURETHANE-COATED BASALT FIBER AND RECYCLED POLYETHYLENE | 530 |
| KURBONOV SALOKHIDDIN, MALIKOV GANISHER | |
| GEOTECHNICAL EVALUATION OF SOIL COMPOSITION AND MECHANICAL PROPERTIES FOR FOUNDATION STABILITY | 537 |
| ABDUBAKI KAYUMOV, OLMOS ZAFAROV, SINDORKUL KHALIKOV, TEMUR KHUDOYBERDIYEV, SHERALI QODIROV, NURSULTON KHOLMURZAYEV | |
| HYDRO-MECHANICAL DEGRADATION OF STRENGTH IN SALINE SOILS UNDER MOISTURE INFILTRATION AND LEACHING | 545 |
| ALIMJON AKHUNZHANOV, KHOLMELI KARAKULOV, ZAFAR MAKHAMOV, OLMOS ZAFAROV, ELBOY KURBANOV | |

| | |
|--|------------|
| EFFECT OF INDUSTRIAL BY-PRODUCT MODIFIERS ON THE THERMO-OXIDATIVE STABILITY OF NATURAL BITUMEN: AN FTIR STUDY | 553 |
| RAKHIMJON SAYRAKHMONOV, ASAD TOSMAKHMADZODA, NURALI ARABZODA, FIRUZ SHARIFOV, JAMSHAD BERDIEV, KHURSHID ABDULLAEV | |
| MATHEMATICAL MODELS IN ENGINEERING | |
| A COMPARATIVE STUDY OF 2D AND 3D MODELING OF TURBULENT FLOW OVER A BACKWARD-FACING STEP USING THE GEKO TURBULENCE MODEL | 559 |
| MURODIL MADALIEV, MUXAYYO TUXTASINOVA, ZUXRAXON XASHIMOVA, FARANGIZ ABDUXAKIMOVA, ASADBEK ZOKIRJONOV, MUSHTARIYBONU VOHOBJONOVA, ABBOSJON QOSIMOV | |
| AHP-BASED ASSESSMENT AND SERVICE-LIFE PREDICTION OF URBAN REINFORCED CONCRETE BRIDGE STRUCTURES: A CASE STUDY FROM TASHKENT | 566 |
| ULUGBEK SHERMUKHAMEDOV, ANDREY BELYI, DILFUZA ESHMAMATOVA, JAKHONGIR AZIMOV, MAMURA SOBIROVA, DIYORBEB BEKMIRZAEV | |
| FORECAST OF THE SERVICE LIFE OF RAILS AND REINFORCED CONCRETE SLEEPERS TAKING INTO ACCOUNT THE STRESS-STRAIN STATE UNDER OPERATING CONDITIONS IN UZBEKISTAN | 577 |
| SAIDBURKHAN DJABBAROV, NODIRBEK KODIROV, ERKIN KAKHAROV, SAULET SHAYAKHMETOV | |
| DESIGN AND NUMERICAL SIMULATION OF THE DOWNHOLE HYDRAULIC TURBINE ROTARY SHOE STRUCTURE | 585 |
| ZHAOQI YAO, YONGDONG HUANG, HAONAN CUI, WEIGUO YAN, XIAOJUN ZHOU | |
| ANALYTICAL MODEL FOR PREDICTING THE COMPRESSIVE STRENGTH OF RECYCLED AGGREGATE CONCRETE | 591 |
| KAYUMOV AZIZJON, YAHOR ZHUKOUSKI | |
| A COUPLED NON-STATIONARY MODEL OF AIRFLOW AND DUST TRANSPORT IN UNDERGROUND MINE VENTILATION CORRIDORS | 598 |
| TULKIN BOTIROV, AZIZJON BOBOYEV, SHAHRIYOR LATIPOV, ZUKHRIDDIN AMIRKULOV, TOLIBJONOV SHOKHZHAKHON | |
| DYNAMIC RESPONSE AND OSCILLATIONS OF AN ELASTIC SPHERICAL BODY IN THE FIELD OF AN EXTERNAL HARMONIC WAVE | 605 |
| SHAVKAT ALMURATOV, JAKHONGIR SHOMURODOV, OKSANA SAVENKO, NARGIZA TOSHBOYEVA | |
| NUMERICAL MODELING OF FIBER REINFORCED CONCRETE BEAMS USING ANSYS | 610 |
| SATTAR KHOLMIRZAEV, AKMALJON AKHMEDOV, SOBIRJON RAZZAKOV, ABDURASUL MARTAZAEV, ASALKHON JURAEVA | |
| PROPAGATION OF THREE-DIMENSIONAL BOUNDARY WAVES IN THIN VISCOELASTIC CYLINDRICAL SHELLS | 616 |
| BOTIR USMANOV, ISMOIL SAFAROV, BEKZOD MIRZAKABILOV, TULKIN RUZIYEV, NOZIMBEK SHOMURODOV, SHERZODJON ABLOKULOV | |
| INFERRING SOIL STRESSES FROM PLATE DEFLECTION UNDER SELF-WEIGHT AND SURCHARGE: AN EXPONENTIAL MODELING APPROACH | 624 |
| ASKAR KHASANOV, BEKHZOD TOSHMUKUMOV | |
| STUDYING THE STABILITY OF THE SLIDGE SLOPE OF A RAILWAY SECTION | 632 |
| DJABBAROV SAIDBURKHAN, MUKARRAMOV RAMAZON, AMARTA AGASTYASA GHEA | |

| | |
|---|------------|
| MATHEMATICAL MODELING OF ENVIRONMENTAL CONSEQUENCES OF RIVER FLOW REGULATION BY HYDROELECTRIC POWER PLANTS | 639 |
| ABDULLAEV AKMALJON, HIDOYATOVA MUYASSAR, ALIKULOV YOLQIN, KHAMIDOV SHERALI | |
| CALCULATION MODEL OF ELASTIC DEFORMATIONS OF A RAILWAY WHEEL IN THE CONTACT ZONE WITH THE RAIL, TAKING INTO ACCOUNT LUBRICATION | 646 |
| ANNA AVDEEVA | |
| DIGITAL RISK MATRIX AND SAFETY MANAGEMENT WORKFLOW FOR AIRPORT INFRASTRUCTURE IN DEVELOPING COUNTRIES: A DATA-DRIVEN PRIORITIZATION APPROACH | 653 |
| RITA SALMORBEBKOVA, MIRAZIZ TALIPOV | |
| MATHEMATICAL MODELING OF THE INFLUENCE OF NICKEL CONTENT ON THE HARDNESS CHARACTERISTICS OF MALLEABLE CAST IRON | 662 |
| SARVAR TURSUNBAEV, BOBURJON IBROKHIMOV, SHERZOD TASHBULATOV, SHOHRUH HUDOYKULOV, MUKHLISAKHON ABDURAKHMONOVA, DILSHOD KULMURADOV | |
| SEISMIC SURFACE WAVE PROTECTION OF THE ADMINISTRATIVE BUILDING OF NAMANGAN STATE TECHNICAL UNIVERSITY USING A TIRE-FILLED BARRIER | 668 |
| AKBARJON ABDUNAZAROV, SHARAFITDIN YULDASHEV, MUHAMMADBOBIR BOYTEMIROV, MUNIRA KARABAYEVA, FAXRIDDIN YULDASHEV | |
| MODELING OF TURBULENT FLOW OVER A CHANNEL WITH A ROUGH SURFACE USING A TURBULENCE MODEL K-E | 675 |
| MURODIL MADALIEV, ABBOSJON QOSIMOV, FARXOD TOJIBOYEV, MAXAMMADJON QOBULOV, VALIKHON ORIBJONOV, AKBARSHOX G'ULOMOV | |
| STRUCTURAL STRENGTH ANALYSIS OF REMOVABLE FREIGHT CAR BODY USING FINITE ELEMENT MODELING | 683 |
| OLMOS ZAYNITDINOV, RUSTAM RAHIMOV, DIYOR ZAFAROV, GEORGE TUMANISHVILI | |
| SIMULATION OF PORE EVOLUTION UNDER LASER REMELTING IN SLM PROCESS | 690 |
| YANPING MIAO, ZHIWEN LI, HUI LEI | |
| ADAPTING NORMATIVE METHODS FOR HIGHWAY DRAINAGE DESIGN TO CLIMATIC NONSTATIONARITY IN UZBEKISTAN: A RISK ASSESSMENT BASED ON ERA5 REANALYSIS | 696 |
| BARNO SALIMOVA, RASHIDBEK HUDAYKULOV, DILSHOD ARALOV, ALAYBEK KURBANBAEV, ERKINBEK KARIMOV, DARKHAN YELEMES, ELENA KHODAN | |
| CALCULATION OF DISPLACEMENTS AND FORCES DURING LONGITUDINAL OSCILLATIONS OF AN UNDERGROUND PIPELINE | 703 |
| USARKUL RAKHMANOV, GULCHEKHRA ISMAILOVA, YAKUTKHAN KHAKIMOVA, ZAMIRA MIRZAYEVA, MUKHABBAT KAZAKBAYEVA, FAKHRIDDIN ZOKIROV | |
| STRESS-STRAIN BEHAVIOR OF RAIL FASTENINGS IN RAILWAY TURNOUTS | 710 |
| ALEKSEY BONDARENKO, KUVANDIK LESOV, TALGAT SALAKHOV, DING HAIBO, MUKHAMEDALI KENJALIYEV, MURAT ALIMKULOV | |

SYSTEM DYNAMICS IN MANUFACTURING SYSTEM MODELING

| | |
|--|------------|
| PLASTIC DEFORMATION OF SURFACE BY STEEL BALL: THEORETICAL FOUNDATIONS, EXPERIMENT, AND MATHEMATICAL MODELING | 717 |
| TIRKASH TURAEV, TUKHTAMUROD NABIEV | |
| DESIGN AND INDUSTRIAL VALIDATION OF AN ASYMMETRIC ELASTIC BEARING FOR VIBRATION CONTROL IN COTTON GIN SAW CYLINDERS | 725 |
| SHAKHNOZA MAKHMUDOVA, MURODULLO RAKHIMOV, SHARIFA HAYDAROVA, JAVOHIR ISMOILOV | |
| RESEARCH ON THE DESIGN AND APPLICATION OF AN AUXILIARY STABILIZATION DEVICE FOR CRAWLER DRILLING RIGS IN UNDERGROUND COAL MINES | 732 |
| ZHIFENG WU, XIN GAO | |

SHORT DESCRIPTION ABOUT THIS CATEGORY

Vibroengineering is an abbreviation of two words: vibration and engineering. Vibration phenomena play an important role in a wide range of mechanical, structural, electromechanical systems. Vibration engineering covers such topics as mechanical vibrations and applications, fault diagnosis based on vibration signal analysis, seismic engineering, acoustics and noise control, energy harvesting and vibration generation.

Every consecutive Volume of Vibroengineering Procedia is dedicated to a separate conference in the series of International Conferences on Vibroengineering.