

LIST OF PAPERS PUBLISHED IN ‘PHYSICOCHEMICAL MECHANICS OF MATERIALS’ IN 2020

Editor-in-Chief’s remark	1	7
<i>Verbovytskyy Yu. V., Berezovets V. V., Kytsya A. R., Zavaliv I. Yu., and Yartys V. A.</i> Hydrogen generation by hydrolysis of MgH ₂	1	9
<i>Vasyliv B. D., Podhurska V. Ya., Ostash O. P., Polishko I. O., Brodnikovskyi Ye. M., Ivanchenko S. E., and Vasyliev O. D.</i> The influence of the fuel cell working environment on the structure and physico-mechanical characteristics of ZrO ₂ –Y ₂ O ₃ –NiO ceramics	1	21
<i>Brodnikovsky N. P., Kuznetsova T. L., Rokytka O. A., and Zubets Y. Y.</i> The choice of the multi-component composition of Nb–Ti–Al niobium alloy with increased specific high temperature strength, heat resistance, and manufacturability	1	27
<i>Chumalo H. V., Posuvailo V. M., Kharchenko Ye. V., and Palyukh V. M.</i> The influence of electrolyte composition on the properties of plasma electrolytic oxide coatings on light alloys.....	1	32
<i>Tolstolutska G. D., Ruzhytskyi V. V., Kopanets I. Ye., Kuprin O. S., Voyevodin V. M., Bilous V. A., and Vasylenko R. L.</i> Peculiarities of saturation with deuterium of vacuum-arc coatings based on iron	1	39
<i>Holubets V. M., Dovhunyk V. M., Pashechko M. I., Korniy S. A., and Shpuliar Yu. S.</i> Frictional behavior of electric arc coatings under conditions of boundary lubrication.....	1	47
<i>Kaplun P. V., Gonchar V. A., and Donchenko T. V.</i> Kinetics of wear of steels with diffusion coatings under rolling friction	1	53
<i>Zhibin Zheng, Shatrava A. P., Likhoshva V. P., Pelikan O. A., and Kaihong Zheng.</i> Structure and properties of bimetallic centrifugally cast flour milling rollers	1	61
<i>Wen-Guang Song, Hembara O. V., and Sapuzhak Ya. I.</i> Mathematical modeling of hydrogen influence on corrosion activity of steel structures	1	68
<i>Pryadko T. V., Dekhtyarenko V. A., and Shkola A. A.</i> The influence of environment during laser treatment on titanium hydrogen embrittlement resistance	1	76
<i>Skorodynskyi I. S. and Maksymuk O. V.</i> The stress state of the viscoelastic layer on the rigid base subjected to concentrated cyclic load	1	82
<i>Kryven V. A., Boiko A. R., Valiashek V. B., and Tsymbaliuk L. I.</i> Plastic exfoliation of the periodic system of thin adjoining inclusions	1	89
<i>Ostryk V. I.</i> Partially opened semi-infinite crack at the edge of an elastic strip and rigid wall	1	94
<i>Stashchuk M. H. and Irza Ye. M.</i> Optimization of heat treatment modes of structural elements of functionally gradient materials.....	1	101
<i>Andreikiv O. Ye., Babii A. V., Dolinska I. Ya., and Matviiv Yu. Ya.</i> Determination of residual life time of the field sprinkler bar-bell for manoeuvring mode of loading.....	1	106
<i>Voloshyn V. A.</i> Fatigue crack propagation resistance of the operated welded joint of 17T1C pipe steel	1	112
<i>Kopei B. V., Zvirko O. I., Venhryniuk T. P., Slobodian Z. V., and Shtoiko I. P.</i> Increase of fatigue strength of pumping rods with treatment by a special technological environment.....	1	118
<i>Shopa T. V.</i> Transverse oscillations of an orthotropic plate with holes and inclusions	1	124

<i>Savruk M. P., Onyshko L. Yo., Kvasniuk O. I., and Bida N. M.</i> Stress state of an orthotropic plane with a two-sectional kinked crack under antiplane deformation.....	2	7
<i>Yevtushenko O., Kuciej M., and Topchewska K.</i> Determination of maximum temperature of the pad–disc tribosystem during single braking	2	14
<i>Shyshkovskyy R. O.</i> Evaluation of specific energy of material fracture under shear deformation	2	21
<i>Andreikiv O. Ye., Babii A. V., and Dolinska I. Ya.</i> The influence of operating environments and maneuvering mode loading on residual life of barbell field sprayers.....	2	26
<i>Rudavskyi D. V., Shefer M. S., and Kaniuk Yu. I.</i> Fatigue crack growth at the side frame surface of the freight wagon bogie under irregular operation load.....	2	33
<i>Semenov P. O., and Pustovyi V. M.</i> Complex diagnostics of operated metal structures of grab reloader	2	39
<i>Yasniy P. V., Dyvdyk O. V., and Yasniy V. P.</i> Finite analysis of the cold deformation process of holes using a shape memory alloy.....	2	46
<i>Hryhorenko G. M., Markashova L. I., Holovko V. V., Berdnikova O. M., Alekseeenko T. O., and Zukov V. V.</i> The influence of titanium containing inoculates on structure of low-alloy high-strength steel weld metals	2	52
<i>Dziubyk A. R.</i> Impact toughness of 34XH2MA steel welded joints prepared by electrodes with different phase composition.....	2	60
<i>Ghazvinloo H. R. and Honarbakhsh-Raouf A.</i> Mechanical strength of the weld metal in CK45 carbon steel.....	2	67
<i>Askerov Kh. A. and Vakulenko I. O.</i> Evaluation of the effect of pearlite dispersion on carbon steel fatigue.....	2	71
<i>Kug Kh. and Khalifa Sh. S. M.</i> The influence of thermomechanical treatment on Mg–Al–Zn–Mn alloy properties	2	75
<i>Myslyvchenko O. M., Bondar A. A., Horban V. F., Luhovskiy Yu. F., Soboliev V. B., and Tikhonova I. B.</i> Structure and physicomechanical properties of as-cast Ti–Nb–Mo titanium alloys.....	2	81
<i>Syzonenko O. M., Prokhorenko S. V., Lypian Ye. V., Zaichenko A. D., Prystash M. S., Torpakov A. S., Pashchyn M. O., Voinarovska-Novak R., and Sheregii Ye.</i> Charge-pulse preparation of Ti–TiC modifier and its influence on the structure and properties of metal	2	88
<i>Piddubnyi S. V., Tatarchenko G. O., and Sokolenko V. M.</i> A shortcut method of determining frost-resistance of silicate building materials	2	95
<i>Ivanytskyi Ya. L., Boiko V. M., Stankevych V. Z., and Ganulich B. K.</i> A method for determining the stress-strain state in metal under action of gaseous hydrogen and temperature	2	101
<i>Pokhmurskii V. I., Vasyliv Ch. B., Bondarenko V. P., Vynar V. A., Ratska N. B., and Baranovsky O. M.</i> The influence of alloying of hard WC–Ni alloys with chromium and vanadium carbides on their corrosion and trybocorrosion characteristics	2	109
<i>Riatsev S. I., Polonskyi V. A., and Sukhova O. V.</i> Structure and corrosion properties of quasi-crystal cast alloys and film Al–Cu–Fe coatings	2	115
<i>Nyrkova L. I.</i> Stress corrosion cracking of X70 pipe steel under cathode protection	2	124
<i>Kret N. V., Svirskaya L. M., and Vengryniuk T. P.</i> Corrosion-fatigue crack growth in 20H2M steel operating pump rods.....	2	130
<i>Zin I. M., Korniy S. A., Kytsya A. R., Bilyi L. M., Danyliak M.-O. M., Lyutyy P. Y.</i> Protective properties of alkyd coatings inhibited by complex zeolite–phosphate pigment.....	2	135
<i>Andreikiv O. Ye., Dolinska I. Ya., and Raiter O. K.</i> Calculation model for assessment of fibroconcrete structures lifetime under long-term static loading	3	7

<i>Kravets V. S., and Savruk M. P.</i> Deformation of an isotropic plate with a periodic system of curvilinear holes and plasticity bands	3	15
<i>Kozachok O. P.</i> The influence of partial filling of gaps by compression liquid on the contact of elastic bodies with a wavy relief	3	24
<i>Masiuk A. S., Kysil Kh. V., Katruk D. S., Skorokhoda V. Yo., Bilyy L. M., and Humenetskyi T. V.</i> Elasto-plastic properties of polylactide composites with highly dispersed fillers	3	31
<i>Jinfei Wang, Kun P. S., Lenkovskyi T. M., Vikovych I. A., and Boiko V. M.</i> Assessing fatigue strength of a plate traction chain	3	39
<i>Myndiuk V. D., Chaban N. I., Rybitskyi I. V., and Karpash O. M.</i> Relation between parameters of acoustic structural noises and mechanical properties of structural	3	44
<i>Sheikin S. Ye., Andreiev I. V., Melnychenko V. V., Studenets S. F., Melnychenko Ya. V., and Hnatenko I. O.</i> Deformation hardening of W–Ni–Fe alloy by cold multi-cycle reduction	3	51
<i>Skoblo T. S., Sidashenko O. I., Saychuk O. V., Klochko O. Y., and Levkin D. A.</i> The influence of stresses on structural changes in grey cast-iron	3	57
<i>Ghazvinloo H. R. and Honarbakhsh-Raouf A.</i> Ductility of welding joints in CK45 carbon steel	3	66
<i>Maksymiv O. V., Kyryliv V. I., Chaikovskyi B. P., Kyryliv Ya. B., Hordiichuk L. M., and Yaroshovych I. H.</i> The influence of surface nanostructurization on seviceability of cast-iron of СІІХН rollers	3	70
<i>Stechyshyn M. S., Oleksandrenko V. P., Martyniuk A. V., Lukianuk M. M., Dovzhyk M. Ya., and Gerasimenko V. A.</i> Physicochemical properties of 40X carbonitrided steel.....	3	76
<i>Myslyuchenko O. M., Krapivka M. O., Tereshchenko O. S., and Filep M. Yo.</i> The influence of chromium on the phase composition and peculiarities of strengthening of high-entropy MnFeCoNiCu alloy	3	81
<i>Luzan S. O. and Luzan A. S.</i> Microstructure and abrasive wear resistance of the deposited Ni–Cr–B–Si material with dispersive phases inclusions	3	86
<i>Zavalii I. Yu., Liutyi P. Ya., Oshchapovskyi I. V., Kovalchuk I. V., and Berezovets V. V.</i> New subnitrides Zr_3MN_x (M – Co, Ni): theoretical calculations, crystal structure and hydrogen sorption properties	3	93
<i>Marushchak P. O., Lytvynenko Ya. V., Dziura V. O., Bishchak R. T., and Polutrenko M. S.</i> Detection of microdefects on the surface of corroded steel pipe.....	3	103
<i>Nemchuk O. O. and Zvirko O. I.</i> Eletrochemical method of diagnostics of sea portal cranes degradation	3	112
<i>Nyrkova L. I., Osadchuk S. O., Klymenko A. V., Rybakov A. O., Melnychuk S. L., and Prokopchuk S. M.</i> The influence of corrosive environment on the correlation of cathode protection current and limit diffusion current for the X70 pipe steel	3	119
<i>Leshchak R. L., Babii A. V., Barna R. A., and Syrotyuk A. M.</i> Corrosion resistance of steel for boom sprayers frame	3	126
<i>Kvasnytska Yu. H., Ivaskevych L. M., Balitskii O. I., Maksiuta I. I., and Mialnitsa G. P.</i> High-temperature salt corrosion of nickel heat-resistant alloy	3	133
<i>Skalskyi V. R., Stankevych O. M., Klym B. P., Lisnichuk A. Ye., and Velykyi P. P.</i> Identification of fracture mechanisms of cement mortar reinforced with basalt and polypropylene fibers	4	7
<i>Ganulich B. K., Ivanytskyi Ya. L., Boiko V. M., and Shyshkovskyi R. O.</i> Calculation of theoretical strength of metals and experimental approbation	4	19
<i>Yasniy V. P., Student O. Z., Yasniy P. V., and Nykyforchyn H. M.</i> Micromechanism of fatigue cracks propagation in pseudoelastic NiTi alloy with shape memory	4	25

<i>Syrotyuk A. M., Babii A. V., Barna R. A., Leshchak R. L., and Maruschak P. O.</i>	
Corrosion fatigue crack growth resistance of steel for boom sprayers frame	4 30
<i>Kostin V. A., Pozniakov V. D., Berdnikova O. M., Zhukov V. V., Alekseyenko T. O., and Alekseyenko I. I.</i> The influence of structural transformations	
on mechanical properties of welded joints of armoured steels	4 36
<i>Myslyvchenko O. M., Bondar A. A., Tsyganenko N. I., Petyukh V. M., Lugovskiy Yu. F., and Gorban V. F.</i> The influence of thermal treatment	
on microstructure and mechanical properties of Ti–Nb–Mo titanium alloys.....	4 44
<i>Fedyna L. O., Fedorchuk A. O., Mykhalichko V. M., and Fedyna M. F.</i>	
Phase formation and crystal structure of $\text{LaCu}_{13-x}\text{Si}_x$ compounds at 870 K.....	4 53
<i>Tolochyn O. I., Bagliuk G. A., Tolochyna O. V., Yevych Ya. I., Podrezov Yu. M., and Molchanovska H. M.</i> Structure and physicochemical properties	
of Fe_3Al intermetallide obtained by impact sintering	4 60
<i>Voyevodin V. N., Fedirko V. N., Trush V. S., Lukyanenko O. H., Stoev P. I., Panov V. A., and Tikhonovsky M. A.</i> The influence of thermochemical	
treatment on oxidation of fuel cladding tubes made of Zr–1% Nb alloy	4 69
<i>Kravchyshyn T. M., Pohrelyuk I. M., and Lavrys S. M.</i> Physicomechanical	
characteristics of BT6 titanium alloy after surface deformation-diffusion	
treatment	4 76
<i>Maksymiv O. V., Kyryliv V. I., Chaikovskyi B. P., Tsizh B. R., Kostruba A. M., and Hurei V. I.</i> The influence of surface nanostructuring on wear resistance	
of seeding machine ploughshare disks made of 65Г steel	4 82
<i>Povstianoi O. Yu., Rud V. D., Imbirovych N. Yu., Halchuk T. N., Chetverzhuk T. I., Smal M. V., and Dziubynskyi A. V.</i> Optimization of the properties	
of multi-layer porous penetrating materials	4 88
<i>Znak Z. O., Korniy S. A., Mashtaler A. S., and Zin O. I.</i> Preparation	
of nanoporous zeolite modified by silver ions with antibacterial properties.....	4 93
<i>Khoma M. S., Ivashkiv V. R., Ratska N. B., Datsko B. M., and Chuchman M. R.</i>	
Corrosion-electrochemical properties of 17Г1CY steel in chloride-acetate	
solution with different hydrogen sulphide concentration.....	4 100
<i>Student M. M., Veselivska H. H., Kalakhan O. S., Hvozdetskyi V. M., Zadorozhna Kh. R., and Sirak Ya. Ya.</i> The influence of the conditions	
of plasma-electrolytic treatment of Д16Т aluminium alloy on its corrosion	
resistance in 3% NaCl solution	4 105
<i>Posuvailo V. M. and Kovalchuk I. V.</i> The influence of hydrogen on synthesis	
of oxide-ceramic coatings in electrolytic plasma on aluminium alloys.....	4 114
<i>Ostash O. P., Polyvoda S. Ya., Narivskyi A. V., Chepil R. V., Podhurska V. Ya., and Kulyk V. V.</i> The influence of chemical composition on structure	
and mechanical and corrosion properties of cast Al–Mg–Sc alloys	4 122
<i>Zhbadynskyi I. Ya. and Butrak I. O.</i> Dynamic stresses in the elastic matrix	
with singly-periodic array of compliant disk inclusions	4 128
<i>Nazarchuk Z. T. H. V. Karpenko and physicochemical mechanics of materials.....</i>	5 5
<i>Zvirko O. I., Kryzhanivskyi Ye. I., Nykyforchyn H. M., and Krechkovska H. V.</i>	
Methods for assessing corrosion hydrogen degradation	
of oil-gas pipelines steels	5 7
<i>Pokhmurskyi V. I., Khoma M. S., Chuchman M. R., and Datsko B. M.</i>	
Corrosion and hydrogenation of 17Г1C-Y steel in hydrogen sulfide media	
of different concentrations	5 15
<i>Korniy S. A., Zin I. M., Tymus M. B., Khlopyk O. P., and Danyliak M.-O. M.</i>	
Corrosion protection of carbon steel by composition based	
on natural polysaccharide	5 23
<i>Slobodian Z. V., Mahlatiuk L. A., Kupovych R. B., and Patsai I. O.</i> Corrosion	
behavior of 20 steel, copper, brass and aluminum in inhibited acid solutions.....	5 28
<i>Pohrelyuk I. M., Savvakin D. G., Melnyk Kh. R., Stasyuk O. O., Ovchynnykov O. V., Tkachenko S. M., and Osypenko O. O.</i> Corrosion resistance of c.p. titanium	

and Ti-6Al-4V alloy prepared by powder metallurgy in aqueous solutions of hydrochloric acid.....	5	33
<i>Pokhmurska H. V., Student M. M., Veselivska H. H., Zadorozhna Kh. R., Gvozdetskii V. M., and Yusikiv V. M.</i> Corrosion-electrochemical behaviour of SiC laser modified 7075 aluminium alloy in neutral aqueous solutions.....	5	40
<i>Kityk A. A., Protsenko V. S., Danilov F. I., Pavlik V., and Boča M.</i> Effect of electropolishing of metals and alloys in a deep eutectic solvent on their corrosion characteristics	5	47
<i>Nenastina T. O., Ved M. V., Sakhnenko M. D., Proskurina V. O., and Zubanova S. I.</i> Corrosion resistance of composite coatings based on cobalt alloys with refractory metals	5	52
<i>Nyrkova L. I., Osadchyk S. O., Kovalenko S. Yu., Klymenko A. V., and Labur T. M.</i> The influence of heat treatment on corrosion resistance of the welded joint of the Al-Mg-Si-Cu aluminum alloy.....	5	59
<i>Yapontseva Yu. S., Maltseva T. V., and Kublanovsky V. S.</i> Corrosion properties of electrolytic coatings based on CoW, CoRe and CoWRe alloys	5	66
<i>Vasylyev G. S. and Herasymenko Yu. S.</i> Improvement of plate heat exchangers performance with application of ultrasonic vibration	5	71
<i>Korolov V. P., Gibalenko O. M., and Korolov P. V.</i> Methods for controlling corrosion protection of industrial facilities steel constructions.....	5	77
<i>Zozulya G. I., Kuntyi O. I., Mertsalo I. P., and Mazur A. S.</i> Obtaining of porous bimetal Cu/Ag by galvanic substitution of galvanized brass	5	83
<i>Lopachak M. M., Khrushchyk Kh. I., Dnistryan V. V., Boichyshyn L. M., and Reshetnyak O. V.</i> Corrosion resistance of amorphous metal alloys $\text{Co}_{77}\text{Si}_{11}\text{B}_{12}$ as electrodes of hydrogen evolution from alkaline solutions	5	88
<i>Ledovskykh V. M., Vyshnevyska Yu. P., Brazhnyk I. V., and Levchenko S. V.</i> Mechanism of the oxidative and salt passivators coaction within binary inhibitive mixtures	5	93
<i>Dergach T. O. and Sukhomlin G. D.</i> Methods of improving corrosion resistance of tubes made of low-alloy steels for the gas-and-oil producing industry	5	99
<i>Bilyy O. L., González-Sánchez J., and De León Gomez C.</i> Effect of external electromagnetic field on corrosion fatigue of duplex stainless steel 2205 welded joints	5	105
<i>Polutrenko M. S., Marushchak P. O., Bishchak R. T., Andrusyak U. B., and Babii A. V.</i> Diagnostic of the surface of 20 and 17Г1С-У steels corrosion damaged by sulfate reducing bacteria.....	5	110
<i>Sylovaniuk V. P. and Ivantyshyn N. A.</i> Healing of shear cracks in anisotropic bodies	5	118
<i>Glotka O. A.</i> Distribution of alloying elements in carbides of refractory nickel alloys of equiaxial crystallization.....	5	124
<i>Lenkovskyi T. M., Ivanytskyi Ya. L., Molkov Yu. V., Duriagina Z. A., Kulyk V. V., Trostianchyn A. M., and Shyshkovskyi R. O.</i> Analysis of the stress-strain state of the Bridgman specimen by the finite elements method under axial tension	5	132
<i>Smiyan O. D. and Student O. Z.</i> Fractographic signs of gigacycle fatigue and hydrogenation under long-term operating heat-resistant steels.....	6	5
<i>Vynar V. A., Vasylyiv Ch. B., Ratska N. B., Ivashkiv V. R., Chuchman M. R., and Datsko B. M.</i> The effect of temperature and carbon dioxide pressure on corrosion and corrosion-mechanical fracture of pipe steels in model seam water	6	16
<i>Zvirko O. I., Tsyrulnyk O. T., Dzioba I., Kret N. V., and Lipiec S.</i> The influence of structure peculiarities of casing steels on their mechanical properties and hydrogen brittleness	6	24

<i>Hertsyk O. M., Kovbuz M. O., Hula T. H., Korniy S. A., Yezerska O. A., and Pandiak N. L.</i> Corrosion resistance of modified amorphous Fe-based alloys in sulfuric	6	30
<i>Zhigang Liu, Chepil O. Ya., and Sapuzhak Ya. I.</i> Mathematical modeling of damage accumulation under conditions of creep and corrosion cracking of structural materials	6	38
<i>Skoblo T. S., Klochko O. Yu., Sidashenko O. I., Belkin Ye. L., Avtukhov A. K., Maltsev T. V., Deryabkina Ye. S., and Kolpachenko N. M.</i> The signs of carbide phase degradation in cast irons at temperatures of forming rolls	6	45
<i>Konovalenko I. V. and Maruschak P. O.</i> Classification of surface technological defects of metal roll in metal-roll by means of deep neuron network	6	52
<i>Blikharskyi Ya. Z. and Maksymenko O. P.</i> Assessment of strength and deformation of heat-strengthened reinforcement	6	60
<i>Usov V. V., Shkatulyak N. M., Savchuk O. S., and Rybak N. I.</i> The effect of the type of deformation and texture on the damageability and mechanical properties of magnesium ZE10 alloy	6	65
<i>Ghazvinloo H. R. and Honarbakhsh-Raof A.</i> The numerical modeling of heat-affected zone in GMAW process	6	76
<i>Babachenko O. I., Kononenko G. A., Podolskyi R. V., and Safronova O. A.</i> Steel for railway rails with improved performance properties	6	82
<i>Student M. M., Pohrelyuk I. M., Chumalo H. V., and Hvozdetskyi V. M.</i> Improvement of the functional characteristics of the coatings obtained by the method of hard anodizing of aluminum	6	87
<i>Nesterenkov V. M., Motrunich S. I., Berdnikova O. M., Klochko I. M., and Polovetskyi Ye. V.</i> Fatigue life improvement of the electron beam welds made from aluminum 7056-T351 alloy	6	96
<i>Stechyshyn M. S., Skyba M. Ye., Stechyshyna N. M., Solariov O. O., and Kalnaguz O. M.</i> Physicochemical properties of carbonitrided XBГ steel	6	102
<i>Podhurska V. Ya., Vasyliv B. D., Ostash O. P., Danilenko I. A., Shylo A. V., and Burkhoveretski V. V.</i> The influence of the reducing environment on the structure and physicomechanical properties of ceramics of the ZrO ₂ –Y ₂ O ₃ –Al ₂ O ₃ –NiO–CuO	6	108
<i>Mechnik V. A., Kolodnitskyi V. M., Zakiev I. M., Zakiev V. I., Ignatovich S. R., and Isonkin A. M.</i> The CrB ₂ powder influence on physicomechanical properties of Fe–Cu–Ni–Sn composites sintered by vacuum hot pressing	6	116
<i>Kublii V. Z., Utkin S. V., Bondar A. A., and Remez M. V.</i> Properties of Mo–Ni–B phases and alloys in the Ni–MoNi–Mo ₂ NiB ₂ –Ni ₂ B region	6	125
<i>Masyuk A. S., Levytskyi V. E., Kysil Kh. V., Katruk D. S., Bilyi L. M., and Humenetskyi T. V.</i> The influence of calcium phosphates on morphology and properties of polylactide composites	6	132
IN SCIENTIFIC CIRCLES		
<i>Nykyforchyn H. M.</i> European Conference on Fracture	4	133
<i>List of papers published in “Physicochemical Mechanics of Materials” in 2020</i>6 139		
<i>Authors’ index</i>	6	145