

LIST OF PAPERS PUBLISHED IN ‘PHYSICOCHEMICAL MECHANICS OF MATERIALS’ IN 2021

<i>Lobanov L. M., Pashchin M. O., Mikhodui O. L., Cherkashyn O. V., and Kondratenko I. P.</i> The influence of pulse electromagnetic field treatment on the stress state of AMg6 aluminum alloy.....	1	5
<i>Adjamsky S. V., Sazanishvili Z. V., Tkachov Yu. V., and Kononenko G. A.</i> The influence of time interval between application of layers by SLM-technology on the structure and properties of INCONEL 718 alloy.....	1	13
<i>Abolikhina O. V., Znova V. A., Semenets O. I., and Podrezov Yu. M.</i> The influence of microstructure of Al–Zn–Mg–Cu alloys on fracture mechanism of aircraft constructions.....	1	20
<i>Bulyk I. I. and Kononiuk O. P.</i> Properties of powders of induction-melted Sm ₂ Co ₁₇ based alloy depending on milling conditions.....	1	28
<i>Bagliuk G. A., Bezimyanniy Yu. G., and Stasiuk O. O.</i> The influence of hot stamping on elastic properties and anisotropy of titanium-based powder composites	1	35
<i>Pohrelyuk I. M. and Lavrys S. M.</i> Thermal stability of the deformed surface layer of Ti–5Al–5Mo–5V–1.5Cu–Fe titanium alloy in nitrogen-containing medium	1	42
<i>Skalskyi V. R., Rudavskyi D. V., Shefer M. S., and Kanyuk Yu. I.</i> Effect of car retarders on crack growth at the side frame of freight car bogie.....	1	47
<i>Zavaliv I. Yu., Berezovets V. V., Oshchapovsky I. V., and Zasadnyy T. M.</i> Mg–TiN and Mg–ZrN nanocomposites as efficient hydrogen storage and generation materials	1	52
<i>Berdnikova O. M., Maksimov S. Yu., Prilipko O. O., Alekseienko T. O., Polovetskyi Ye. V., and Alekseienko I. I.</i> The influence of external electromagnetic field on welded joints structure during underwater welding	1	60
<i>Student O. Z., Krechkovska H. V., Svirska L. M., and Solovei P. R.</i> Restoration of heat-resistant steel properties after long-term operation in a steam pipeline	1	69
<i>Zhuravel I. M. and Michuda L. Z.</i> Use of the Mandelbrot–Zipf law for quantitative assessment of averaged grain size of steel	1	78
<i>Čamagić I., Jović S., Makragić S., Živković P., and Burzić Z.</i> Influence of temperature and exploitation time on fatigue strength and microstructure of welded joints of A-387Gr.B steel	1	83
<i>Khoma M. S., Vynar V. A., Datsko B. M., Ivashkiv V. R., Chuchman M. R., Maksishko Yu. Ya., and Bukliv R. L.</i> Corrosion and mechanical fracture of steel for casing pipes under influence of higher temperatures and carbon dioxide pressure	1	89
<i>Vorobyova V. I., Chygrynets O. E., and Fateev Y. F.</i> Evaluation of the anti-corrosion efficiency of apricot pomace extract in neutral aqueous medium.....	1	95
<i>Korniy S. A., Zin I. M., Khlopky O. P., Holovchuk M. Ya., Danyliak M.-O. M., and Halaichak S. A.</i> Modification of synthetic zeolite with metal cations to increase its corrosion efficiency	1	103
<i>Sizaya O. I., Kvashuk Yu. V., Korolyov O. O., Dmytriev V. A., Pavlenko A. H., and Savchenko O. N.</i> Structural steels corrosion under action of N, S-containing mineral fertilizers	1	111
<i>Ming Wei, Chepil O. Ya., and Hembara N. T.</i> Computer modeling of the influence of hydrogen saturation on the durability of pipe elements.....	1	119

<i>Skachkov V. O., Ivanov V. I., Berezhna O. R., and Nesterenko T. M.</i> Functional characteristics of pyrolytic graphite.....	125
<i>Datsyshyn O. P. and Rudavskaya I. A.</i> A circular disk with a radial internal crack under the action of model contact loading	2
<i>Andreikiv O. Ye. and Dolinska I. Ya.</i> Determination of the period of subcritical growth of small plane cracks of high-temperature creep in structural elements	2
<i>Savruk M. P., Kravets V. S., and Chornenkyi A. B.</i> Optimization of the hole shapes in a quasi-orthotropic plate under biaxial tension	2
<i>Serednytska Kh. I. and Martynyak R. M.</i> Contact of the faces of an interface thermally insulated crack under thermomechanical loading.....	2
<i>Blikharskyy Ya. Z.</i> Modelling of the stress-strain state of heat-strengthened reinforcement and a welded joint by microhardness	2
<i>Skalskyi V. R., Stankevych O. M., Kukhta V. S., Klym B. P., and Kyrmann O. S.</i> Features of dental polymer composites fracture under the action of local loading	2
<i>Lavrynenko O. M., Zahornyi M. M., Tyschenko N. I., Kornienko O. A., and Ievtushenko A. I.</i> Synthesis and properties of nanocomposites based on iron and titanium oxides modified by silver	2
<i>Baranovska O. V., Bykov O. I., Bagliuk G. A., and Kyryliuk S. F.</i> The influence of mechanical activation modes of charge on the structure and phase composition of sintered multi-component titanium-based composites.....	2
<i>Sizonenko O. M., Prystash M. S., Taftai E. I., Torpakov A. S., and Lypian Ye. V.</i> Modelling of electric discharge processes under titanium treatment in hydrocarbon liquid	2
<i>Ostash O. P., Prikhna T. O., Podhurska V. Ya., Kuprin O. S., Karpets M. V., Sverdun V. B., Vasyliv B. D., and Serbenyuk T. B.</i> Light interconnects for medium-temperature (550...650°C) solid oxide fuel cells.....	2
<i>Yusubov F. F. and Hurey I. V.</i> The influence of temperature on the tribological properties of composites for brake pads	2
<i>Krechkovska H. V.</i> Structural-fractographic peculiarities of long-term operated structural steels	2
<i>Trush V. S., Fedirko V. M., Voyevodin V. M., Lukyanenko A. G., Stoev P. I., and Panov V. A.</i> The influence of the functional layer on the performance characteristics of Zr–1% Nb alloy at temperature 380°C	2
<i>Student M. M., Pohrelyuk I. M., Hvozdetskyi V. M., Veselivska H. H., Zadorozhna Kh. R., Mardarevych R. S., and Dzioba Yu. V.</i> The influence of electrolyte composition for hard anodizing of aluminium on oxide layer characteristics.....	2
<i>Shtefan V. V., Kanunnikova N. O., and Goncharenko T. Ye.</i> Analysis of structure and corrosion resistance properties of oxide layers on AISI 304 steel	2
<i>Bilyi L. M., Posuvailo V. M., Ivashkiv V. R., and Kovalchuk I. V.</i> Corrosion properties of oxide ceramic coatings based on Al–Cu–Mg and Al–Mg alloys ...	2
<i>Flamini D., Tuckart W. R., and Prieto G.</i> Influence of cryogenic treatments on the electrochemical behavior of two martensitic stainless steels	2
<i>Dmytrakh I. M., Syrotyuk A. M., and Leshchak R. L.</i> Features of electrochemical hydrogen charging of low-alloyed steel of pipeline in model solution of soil water	2
<i>Korniy S. A., Zin I. M., Khlopyk O. P., Tymus M. B., and Holovchuk M. Ya.</i> The effect of phosphate-nitrate composition on corrosion of mechanically activated surface of aluminum alloy	2
<i>Narivskyi O. E., Belikov S. B., Subbotin S. A., and Pulina T. V.</i> The influence of chloride-containing medium on pitting resistance AISI 321 steel	2
<i>Nazarchuk Z. T.</i> The 70-th anniversary of the foundation of H. V. Karpenko Physico-Mechanical Institute of the National Academy of Sciences of Ukraine	3

<i>Panasyuk V. V. Contribution of H. V. Karpenko Physico-Mechanical Institute of NAS Ukraine into the researches on hydrogen effect on deformation and fracture of metals (A review)</i>	3	7
<i>Khoma M. S., Vasyliv Kh. B., and Chuchman M. R. The influence of hydrogen sulphide concentration on corrosion and hydrogenation of pipe steels (A review)</i>	3	17
<i>Zvirko O. I. Operational degradation of structural steels (A review)</i>	3	28
<i>Savruk M. P. Stress concentration near curvilinear holes and notches with unsmoothed contours</i>	3	41
<i>Nazarchuk Z. T., Voronyak T. I., and Muravsky L. I. Development of optical-digital methods for control of structural elements surface for needs of technical diagnostics.....</i>	3	53
<i>Andreikiv O. Ye., Skalskyi V. R., and Dolinska I. Ya. Theoretical bases of the acoustic emission method in diagnosing delayed fracture of materials</i>	3	64
<i>Verbovytskyy Yu. V., Oprysk V. V., Shtender V. V., and Zavalny I. Yu. Hydrogen sorption properties of materials based on alloys and components with a high content of magnesium</i>	3	74
<i>Student M. M. and Pohrelyuk I. M. Modification of aluminum and titanium alloys surface for increasing their wear resistance and tribological characteristics</i>	3	84
<i>Dmytrakh I. M., Syrotyuk A. M., and Leshchak R. L. Effect of preliminary hydrogen charging-discharging of low-alloyed steel on its further ability to absorb electrochemical hydrogen</i>	3	95
<i>Congyuan Jin, Hembara O. V., and Hrynenko M. V. Computer modeling of deformation of structural elements in creep conditions under metal hydrogenation and complex loading</i>	3	103
<i>Student O. Z., Krechkovska H. V., Svirsko L. M., Kindratskyi B. I., and Shyrokov V. V. Ranking of mechanical characteristics of HPP pipeline steels by their sensitivity to operational degradation</i>	3	110
<i>Ostash O. P., Chepil R. V., Titov V. A., Polyvoda S. L., Voron M. M., and Podhurska V. Ya. Strength and cyclic crack growth resistance of thermally deformed Al–Mg–Sc alloys.....</i>	3	118
<i>Kyryliv V. I., Gurey V. I., Maksymiv O. V., Hurey I. V., and Kulyk Yu. O. The influence of deformation mode on force conditions of formation of the surface nanostructure of 40X steel.....</i>	3	126
<i>Horban V. F., Serdiuk I. V., Chuhai O. M., Voloshyn O. O., Oliinyk S. V., Veselivska H. H., Danylenko M. I., Sliusar D. V., Stolbovyi V. A., and Kalakhan O. S. Peculiarities of structure and electrophysical characteristics of nitride coatings made of high-entropy Ti–V–Zr–Nb–Hf alloy</i>	3	132
<i>Fedorenkova L. I. The influence of pretreatment in electrolyte plasma on composition and properties of the boride layer under multicomponent saturation of steel</i>	3	137
<i>Netrebko V. V., Volchok I. P., Popov S. M., and Akimov I. V. Peculiarities of fracture of high-chromium cast irons under abrasive wear</i>	4	5
<i>Skalskyi V. R., Student M. M., Mokryi O. M., Hvozdetskyi V. M., Romanishyn I. M., and Semak P. M. Assessing the state of the near-surface layers of metal subjected to shot peening using surface acoustic waves</i>	4	12
<i>Rybachuk V. H., Uchanin V. M., and Kulynych Ya. P. Peculiarities of anisotropic nonmagnetic materials testing by eddy-current probes with circular windings</i>	4	18
<i>Hredil M. I. Loss of cohesion between concrete and steel reinforcement under the influence of corrosion-hydrogenated environment</i>	4	24
<i>Dziubyk A. R., Voitovych A. A., Student O. Z., Dziubyk L. V., and Khomych I. B. Assessment of the technical condition of the reinforcement of the reinforced concrete beam span of the bridge of the end of the XX century</i>	4	30

<i>Balitskii O. I., Kvasnytska Yu. H., Ivaskevych L. M., Mialnitsa G. P., and Kvasnytska K. H.</i> Fatigue fracture of gas turbine engine blades made of a new heat-resistant nickel alloy	4	39
<i>Stechyshyna N. M., Stechyshyn M. S., Oleksandrenko V. P., Lytvynenko A. A., Martynyuk A. V., Sukhenko V. Yu., and Tsepenniuk M. I.</i> The influence of energy parameters of hydrogen-free nitriding in the glow discharge on physicochemical properties of 40X steel	4	47
<i>Savruk M. P., Kravets V. S., and Chornenkyi A. B.</i> The influence of shear loading on the shapes of optimal holes in a quasi-orthotropic plate	4	54
<i>Shopa T. V. and Tuzhel'ak O. I.</i> Transversal oscillations of an orthotropic plate with a set of holes of arbitrary shape with account of distributed loading on the surface	4	63
<i>Stashchuk M. H. and Irza Ye. M.</i> Thermal stresses of functionally gradient bodies under annealing	4	71
<i>Trush V. S., Stoev P. I., Fedirko V. N., Voyevodin V. N., Tykhonovskiy M. A., Panov V. A., and Lukyanenko A. G.</i> The influence of hydrogen on the properties of oxidized and nitrided Zr-1% Nb alloy.....	4	79
<i>Tsyrulnyk O. T., Zvirko O. I., and Voloshyn V. A.</i> Corrosion-fatigue endurance of steel 35 in tap water under additional cavitation loading	4	86
<i>Hertsyk O. M., Khrushchyk Kh. I., Kovbuz M. O., Nosenko V. K., Kornii S. A., and Pandiak N. L.</i> The role of diffusion of redox reaction products in the processes of aluminum amorphous alloys corrosion	4	91
<i>Yuzevych V. M. and Lozovan V. P.</i> The influence of mechanical stresses on corrosion crack growth in a pipeline wall	4	96
<i>Kopei B. V., Krechkovska H. V., Nisovskyi V. P., and Bakun B. M.</i> Regularities of crack propagation in hybrid pumping rods.....	4	104
<i>Hembara O. V. and Chepil O. Ya.</i> Modelling of the structural elements deformation under conditions of creep, stress corrosion cracking and hydrogenation	4	111
<i>Abdulina D. R., Kopteva Zh. P., Kopteva A. E., and Vortman M. Ya.</i> Microbial destruction of polymer materials – foamed polyethylene, ethylene vinylacetate and rubber	4	116
<i>Kakherskyi S. I., Dobrozhanyi O. A., Pshenychnyi R. M., Vorobiov S. I., Havryliuk Ye. O., Komanicky V., Plotnikov S. V., and Opanasyuk A. S.</i> The effect of low-temperature annealing on structure and chemical composition of Cu ₂ ZnSnS ₄ films deposited on flexible polyimide substrates	4	125
<i>Ghazvinloo H. R. and Honarbakhsh-Raouf A.</i> Effect of the robotic GMAW parameters on HAZ width in HQ130 steel joints.....	4	134
<i>Opachko I. I., Zhiguts Yu. Yu., and Opachko M. V.</i> Specific features of spraying of layered structures by plasma components formed by nanosecond laser pulses	4	139
<i>Masiuk A. S., Levytskyi V. Ye., Katruk D. S., Humenetskyi T. V., and Bilyi L. M.</i> Physicochemical properties of polyvinyl chloride polystyrene plastics	4	145
<i>Skalskyi V. R., Romanyshyn I. M., Mokryi O. M., and Semak P. M.</i> Assessing damageability of materials by acoustic methods (Review). P. 1	5	5
<i>Kuryliak D. B., Nazarchuk Z. T., Voytko M. V., and Kulynych Ya. P.</i> Diffraction of SH-wave at the interface defect in the joint of the elastic layer with a half-space	5	13
<i>Zvirko O. I., Student O. Z., Andreiko I. M., Kurylas M. S., and Palash R. V.</i> Signs of corrosion-fatigue service damages of stainless steel of heat exchanger plates.....	5	25
<i>Andreikiv O. Ye., Dolinska I. Ya., Nastasiak S. V., and Shefer M. S.</i> Determination of residual life of a torsion bar under corrosion environment effect	5	32

<i>Pustovyi V. M., Semenov P. O., Nemchuk O. O., Hredil M. I., Nesterov O. A., and Strelbitskyi V. V.</i> Degradation of steel of excessively used reloading equipment	5	38
<i>Trush V. S., Stoev P. I., Luk'yanenko A. G., Voyevodin V. N., Pohrelyuk I. M., Fedirko V. M., Kovtun K. V., and Kravchyshyn T. M.</i> The influence of oxidation on the properties of near-surface layer of metals of the IV group (Ti, Zr, Hf)	5	46
<i>Vasyliv B. D., Podhurska V. Ya., Ostash O. P., Danilenko I. A., and Shylo A. V.</i> The influence of redox cycling on physicomechanical properties of $ZrO_2-Y_2O_3-CeO_2-Al_2O_3-NiO-CuO$ ceramics	5	52
<i>Vedel D. V., Grigoriev O. N., Osipov A. E., and Mazur P. V.</i> The influence of high-temperature oxidation on the strength of ZrB_2 -based ceramics	5	59
<i>Babinets V. I., Kobzaruk O. V., and Smagilo B. V.</i> Increasing the fretting-corrosion fatigue of press joints in sea water	5	68
<i>Tymus M. B., Zin I. M., Khlopyk O. P., Pokhmurskii V. I., Holovchuk M. Ya., and Korniy S. A.</i> Aluminum alloy corrosion inhibition by composition of guar gum and tartrate	5	73
<i>Kvasnytska Y. H., Ivaskevich L. M., Balitskii A. I., Kvasnytska K. H., and Mialnitsa H. P.</i> Structural-mechanical properties of nickel alloy of gas turbine engine blades	5	82
<i>Kolomyiets V. V., Antoshchenkov R. V., Fabrychnikova I. A., Bohdanovych S. A., and Halych I. V.</i> Physicomechanical parameters under cutting of deposited surfaces	5	89
<i>Bulyk I. I., Kononiuk O. P., and Bovda V. O.</i> The influence of milling conditions on the structural state of powders of melt spinning Sm_2Co_{17} based alloy	5	95
<i>Duriagina Z. A., Trostianchyn A. M., Kulyk V. V., Vavrukh V. I., and Filimonov O. S.</i> Peculiarities of fine structure and local stress state of 13Kh11N2V2MF steel under cyclic loading	5	103
<i>Verbylo D. G., Kuzmenko M. M., Danylenko V. I., Podrezov Yu. M., Kulak L. D., and Firstov S. O.</i> Creep resistance of Ti-Al-Si-X titanium alloys under short-term bending tests	5	108
<i>Shvaiko M. Yu.</i> Basic principles and limits of application of the plasticity theory based on the concept of sliding and Illushin isotropy postulate	5	112
<i>Prokopyshyn I. I., and Styahar A. O.</i> Numerical analysis of contact between elastic bodies one of which has a nonuniform thin coating	5	125
<i>Kundrat M. M.</i> Exfoliation of the element of reinforcement of a half plane under cyclic loading	5	134
<i>Onyshchuk O. O.</i> The influence of filtrating layer of silver nanoparticles and magnesium oxide on physicochemical properties of water	5	138
<i>Suprun V. Ya., Marukha V. I., and Sylovaniuk V. P.</i> Polyurethane waste recycling technologies (Review)	6	5
<i>Skalskyi V. R., Romanyshyn I. M., Mokryi O. M., and Semak P. M.</i> Assessing damageability of materials by acoustic methods (Review). P. 2	6	15
<i>Andreikiv O. Ye. and Hembara N. T.</i> Modeling hydrogen influence on plastic deformation of metals	6	23
<i>Derkach O. L., Zinkovskii A. P., Savchenko K. V., and Onyshchenko Ye. O.</i> Evaluation determination of effective characteristic of energy dissipation in layered composites	6	30
<i>Ivanytskii Ya. L., Vira V. V., Palukh V. M., Kholod P. F., and Holian O. M.</i> Modeling and assessing of steel strength for turbogenerators under complex loading and at elevated temperatures	6	38
<i>Kozachok O. P.</i> Local friction wear of elastic half-space with a protrusion	6	42
<i>Khoma M. S., Korniy S. A., Vynar V. A., Datsko B. M., Maksishko Yu. Ya., Dykha O. V., and Bukliv R. L.</i> The influence of hydrogen sulphide on carbon dioxide corrosion and mechanical characteristics of high-strength pipe steel	6	49

<i>Tsibula S. D., Starchak V. H., Ivanenko K. M., Bujalska N. P., Kostenko I. A., and Machulsky G. M.</i> Technogenic impact of medium contamination with heavy metals on corrosion protection of metal structures.....	6	56
<i>Astrelin I. M., Herasimenko Yu. S., Bilousova N. A., Kosogina I. V., and Red'ko R. M.</i> Anticorrosion and anti-scale action of inhibitors in conditioned wastewater for recirculation systems	6	65
<i>Slobodian Z. V., Tymus M. B., Mahlatiuk L. A., and Kupovych R. B.</i> Inhibition properties of glucose and seignette salt in 5% hydrochloric and citric acids solutions.....	6	73
<i>Hredil M. I., Zvirko O. I., Tsyrulnyk O. T., and Nykyforchyn H. M.</i> Development of in-laboratory method of steel degradation for assessing their crack growth resistance	6	79
<i>Ostash O. P., Polyvoda S. L., Chepil R. V., Titov V. A., Gogaiev K. O., Kulyk V. V., Voron M. M., and Holovchuk M. Ya.</i> The influence of rare-earth metal on structure and properties of cast and deformed Al–Mg–Cr–Sc–Zr alloys.....	6	84
<i>Lavryk S. M., Pohrelyuk I. M., Luk'yanenko A. G., and Dzhugan A. A.</i> Tribological behavior of porous titanium after thermal oxidation	6	95
<i>Vlasovets V. M., Ridniy R. V., and Antoshchenkov R. V.</i> Increase of hardness of surfacing of recovery details by economical microalloying	6	102
<i>Sachuk O. V., Zazhigalov V. A., Diyuk O. A., Dulian P., Starchevskyy V. L., Kuznetsova L. S., and Kizyun O. V.</i> Properties of Ca(OH) ₂ /TiO ₂ composites modified by mechanochemical and ultrasonic methods	6	109
<i>Ciecielag K., Zaleski K., and Kecik K.</i> Effect of milling parameters on surface defect formation in polymer composites	6	117
<i>Posuvailo V. M., Kovalchuk I. V., and Ivasenko I. B.</i> The influence of hydrogen peroxide on composition and porosity of oxide ceramic coatings on Al–Si–Cu ta Al–Cu–Mg alloys	6	127
<i>Petasiuk G. A.</i> Indirect determination of the thickness of the coating of synthetic diamond powders using new 3D models of their grain	6	133
IN SCIENTIFIC CIRCLES		
<i>Yasniy P. V.</i> , Nykyforchyn H. M. European conference “In-service damage of materials, its diagnostics and prediction”	6	137
JUBILEES		
To the 95-th birthday of Academician Volodymyr Vasyliovych Panasyuk	3	141
Viktor Mykolayovych Fedirkо (to the 75 th birthday)	5	142
OUR LOSSES		
Yasniy Petro Volodymyrovych	6	139
<i>List of papers published in “Physicochemical Mechanics of Materials” in 2021</i>	6	141
<i>Authors' index</i>	6	147