

**LIST OF PAPERS PUBLISHED IN “PHYSICOCHEMICAL MECHANICS  
OF MATERIALS” IN 2009**

<i>Andreikiv O. Ye., Lesiv R. M., and Levytska N. M.</i> Crack propagation in structural materials under common effect of fatigue and creep (A review).....	1	7
<i>Matysiak S. Ya., Savruk M. P., and Yevtushenko O. O.</i> Antiplane deformation of a composite strip with a crack.....	1	25
<i>Stasiuk B. M.</i> The method of effective stress field in three-dimensional problems on interaction of plane cracks.....	1	33
<i>Hachkevych O. P., Solodiak M. T., Ivas'ko R. O., and Boichuk V. Ya.</i> Modeling of the electromagnetic field effect on thermomechanical behaviour of deformed solids.....	1	43
<i>Onyshko L. Yo. and Seniuk M. M.</i> Stress state of a hollow two-layered cylinder under dynamic loading.....	1	55
<i>Martyniak R. M. and Slobodian B. S.</i> Contact of elastic semi-spaces at the presence of elliptical gap with a liquid between them.....	1	62
<i>Matychak Ya. S., Pohreliuk I. M., and Fedirko V. M.</i> Thermodiffusion saturation of $\alpha$ -titanium with nitrogen from the rarefied atmosphere.....	1	66
<i>Markov A. D., Svirska L. M., Student O. Z., and Nykyforchyn H. M.</i> Degradation of low-carbon steel under long-term operation in the oil-hydraulic unit .....	1	76
<i>Bezhenov S. O., Byalik H. A., and Bezhenov O. I.</i> Mechanism of surface hardening of structural carbon steels.....	1	81
<i>Balytskii O. I. and Kostiuk I. F.</i> Strength of welded Cr–Mn steel joints with higher concentration of nitrogen in hydrogen-containing environments .....	1	88
<i>Loboda P. I., Kysla H. P., Dub S. M., and Krasievska O. P.</i> Mechanical properties of lanthanum hexaboride monocrystals.....	1	97
<i>Jun-E Qu, Xing-peng Guo, Zhen-yu Chen, Gong-wu Song, Xiu-hua Zhang.</i> Fractal research on AFM images of polycrystalline aluminium surface with adsorption film of inhibitor SDS.....	1	102
<i>Wang Juan, Li Yajiang, Huang Wanqun.</i> Interfacial microstructure and shear strength in diffusion brazing joint of TiC–Al <sub>2</sub> O <sub>3</sub> ceramic composite with W18Cr4V tool steel .....	1	111
<i>Panasyuk V. V.</i> Some actual problems of materials strength and durability of constructions.....	2	5
<i>Savruk M. P. and Kazberuk A.</i> Fracture mechanics problems for solids with V-shaped notches.....	2	23
<i>Ivanytskyi Ya. L., Hembara O. V., and Ronald van Dijk.</i> Peculiarities of elasto-plastic cracked bodies fracture under triaxial loading and hydrogen effect .....	2	40
<i>Rozumek D. and Macha E.</i> A review of failure criteria and parameters in mixed mode fatigue crack growth.....	2	47
<i>Ostash O. P., Andreiko I. M., Kulyk V. V., Babachenko O. I., and Vira V. V.</i> The influence of heat treatment conditions and stress ratio on fatigue crack growth resistance of wheel steels .....	2	63
<i>Stadnyk M. M.</i> Limiting equilibrium of bodies with elliptical crack under complex loading.....	2	71
<i>Sulym H. T. and Pasternak Ya. M.</i> Determination of the parameters of a limit state of plates containing thin curvilinear elastic inclusions .....	2	75
<i>Bilyi O. L., Dmytrakh I. M., and Barna R. A.</i> Assessing the serviceability and risk of failure of feeding pipeline with corrosion defects.....	2	85

<i>Zavalii I. Yu., Denys R. V., and Berezovets V. V.</i> Mechanochemical methods of synthesis of new composite magnesium-based materials for hydrogen accumulators .....	2	93
<i>Balitskii O. I., Ivaskevych L. M., Mochulskyi V. M., and Holiyan O. M.</i> Hydrogen effect on crack growth resistance of 10X15H27T3B2MP steel .....	2	102
<i>Fedorov V. V., Bulyk I. I., and Panasyuk V. V.</i> Hydrogen as technological environment for preparation of permanent magnets based on P3M alloys .....	2	111
<i>Chernets M. V., Andreikiv O. Ye., Liebiedieva N. M., and Zhydyk V. B.</i> A model for evaluation of wear and durability of slide bearing with small non-circularity of its contours .....	2	121
<i>Yasnii P. V., Konovalenko I. V., and Marushchak P. O.</i> Automated estimation of the deformation fields by coordinate grid technique .....	2	130
<i>Sylkovanyuk V. P., Mitiaiev O. A., Ostrovska A. Ye., Ivantyshyn N. A., and Volchok I. P.</i> The influence of intermetallide inclusions on aluminium alloys endurance .....	2	137
<i>Hrabovskii R. S.</i> Establishing the resource possibilities of oil and gas pipelines of durable operation .....	2	145
<i>Chekurin V. F. and Postolaki L. I.</i> Theoretical and experimental evaluation of residual stresses in plane joints .....	2	153
<i>Kuryliak D. B., Nazarchuk Z. T., and Voytko M. V.</i> On the relation of the stress intensity factors with a far field of SH-wave diffracted at the interfacial crack .....	3	5
<i>Ostash O. P., Kondyr A. I., Voldemarov O. V., Hladyshev P. V., and Kurechko M. V.</i> Structural microdamaging of steels of NPP pipelines .....	3	13
<i>Zhuravel' I. M., Svirs'ka L. M., Student O. Z., Vorobel R. A., and Nykyforchyn H. M.</i> Automatic evaluation of the grains geometry in exploited steam pipeline steel .....	3	23
<i>Kulynych Ya. P. and Datsko Ya. V.</i> Electromagnetic field diffracted at two cracks in a conductive medium .....	3	30
<i>Lobanov L. M., Bychkov S. A., Pivtorak V. A., Derecha V. Ya., Kuders'kyi V. O., Savyts'ka O. M., and Kyianets' I. V.</i> On-line testing of the quality of aviation structure elements by the method of electron shearography .....	3	37
<i>Voroniak T. I., Kmet' A. B., and Murav's'kyi L. I.</i> Evaluation of 3-D displacement fields by the method of phase-shear speckle-interferometry .....	3	43
<i>Yavors'kyi I. M., Isayev I. Yu., Kravets' I. B., Drabich P. P., and Mats'ko I. Yo.</i> Efficiency improving methods for statistical analysis of bearing vibration signals of thermal power plant turbine .....	3	49
<i>Devin L. M., Bondarenko V. P., Osadchy O. A., and Nimchenko T. V.</i> Application of acoustic methods for the control of hard metal items .....	3	60
<i>Skals'kyi V. R., Serhiienko O. M., Mykhail'chuk V. B., and Semeheivs'kyi R. I.</i> Quantitative evaluation of the Barkhausen jumps by the methods of magnetoacoustic emission .....	3	67
<i>Vilens'kyi V. O. and Demchenko V. L.</i> The influence of constant magnetic field intensity on structure and properties of composites based on epoxy resin and oxides Fe(III) or Al (III) .....	3	76
<i>Mytsyk B. H. and Demainyshyn N. M.</i> Hysteresis of stress-strain dependences in the Hooke's region .....	3	83
<i>Rybachuk V. H.</i> Coercimeter for non-destructive testing of hard alloys .....	3	89
<i>Nichoba V. O.</i> Modeling of rail magnetic field excitation around the transversal crack .....	3	96
<i>Dzhala R. M., Verbenets' B. Ya., Mel'nyk M. I., and Shevchuk T. I.</i> Determination of corrosion protection parameters of underground pipelines by non-contact measuring of current .....	3	106
<i>Uchanin V. M.</i> Analysis of signals of internal coaxial eddy-current probe for flaw detection of steam generator pipes .....	3	112

<i>Dzhala V. P. and Kapko L. I.</i> Radiowave testing of flat layered dielectrics on the basis of the reverse problem solution .....	3	117
<i>Ivasenko I. B., Posuvailo V. M., Klapkiv M. D., Vynar V. A., and Ostapiuk S. I.</i> Express-method for the evaluation of oxide-ceramic coating surface defectiveness .....	3	123
<i>Zin' I. M., Pokhmurskii V. I., Lyon S. B., Bilyi L. M., and Tymus' M. B.</i> Inhibition of duralumin alloy local corrosion by chromate-free pigments.....	4	5
<i>Shyrokov V. V., Vasyliv Kh. B., Duriagina Z. A., Laz'ko H. V., and Rats'ka N. B.</i> The influence of laser microalloying by niobium on wear resistance of stainless steels .....	4	12
<i>Student M. M., Pokhmurska H. V., Hvozdetskyi V. V., Holovchuk M. Ya., and Romaniv M. S.</i> The influence of high-temperature corrosion on gas abrasive resistance of electric arc coatings .....	4	19
<i>Arkhypov O. H.</i> Relation of structural and selective corrosion and stress corrosion cracking of stainless steels .....	4	27
<i>Andreikiv O. Ye., Lesiv R. M., and Dolins'ka I. Ya.</i> Dependence of subcritical growth of creep fatigue crack on the period of loading cycle .....	4	31
<i>Stadnyk M. M.</i> Infinite body with a thin elastic inclusion under triaxial loading .....	4	39
<i>Martyniak R. M. and Chumak K. A.</i> Thermoelastic delamination of a body in the presence of heat penetrating filler of the intercontact gap.....	4	45
<i>Medjo B., Rakin M., Zrilic M., Putic S., and Sedmak A.</i> Micromechanical estimate of critical values of J-integral for steam pipeline steel .....	4	53
<i>Hachkevych O. R., Musii R. S., and Stasiuk H. B.</i> Coupled problem of thermo- mechanics for an electric conducting layer under heterogeneous pulse electromagnetic action .....	4	60
<i>Stashchuk M. H. and Dorosh M. I.</i> Evaluation of the deformation state of the thin-walled constructions with cellular structure .....	4	67
<i>Sylvaniuk V. P. and Revenko A. V.</i> The influence of inclusion material creep on stress concentration in a body .....	4	76
<i>Pohreliuk I. M., Fedirko V. M., Yas'kiv O. I., Dong-Bok Lee, Tkachuk O. V., and Chen Li.</i> The influence of non-stoichiometry of TiN <sub>x</sub> titanium nitride on the degree of its oxygen modification .....	4	81
<i>Vasyliv B. D.</i> The method of investigation of mechanical and physical properties of ceramics by biaxial ring-on-ring bending of the disk specimen .....	4	89
<i>Balitskii O. I. and Kolesnikov V. O.</i> Investigation of wear products of high nitrogen manganese steels.....	4	93
<i>Dobrotvor I. H., Stukhiak P. D., and Buketov A. V.</i> Investigation of time intervals of external surface layers formation in epoxycomposites .....	4	99
<i>Kuzin O. A., Yatsiuk R. A., and Kuzin M. O.</i> Use of the mechanical models for determination of the microstructural parameters of alloys with high wear resistance.....	4	105
<i>Chernets M. V. and Bereza V. V.</i> The method of wear and durability calculation of involute conical straight-tooth gearings .....	4	110
<i>Taylor N., Nykyforchyn H. M., Tsyrulnyk O. T., and Student O. Z.</i> Effect of hydrogenation on fracture mode of a reactor pressure vessel steel.....	5	5
<i>Banakhevych Yu. V., Hembara O. V., and Andreikiv O. Ye.</i> Calculation of the kinetics of hydrogen blisters propagation in oil-gas equipment.....	5	17
<i>Bondarenko T. V., Kodentsev S. N., and Kholodnyi V. I.</i> The influence of technological factors on structural materials resistance to hydrogen degradation.....	5	26
<i>Fedorov V. V. and Zasadnyi T. M.</i> The influence of surface modification on hydrogen permeability of reactor steels and their welded joints .....	5	33
<i>Balitskii O. I., Chmiel J., Krause P., Niekrasz J., and Maciag M.</i> The role of hydrogen in cavitation fracture of steel 45 in lubricants.....	5	39

<i>Riabov O. B.</i> Interrelation structure–properties on the example of hydrogen thermal desorption from chosen intermetallic hydrides based on zirconium and rare-earth metals.....	5	43
<i>Nazarchuk Z. T., Skalskyi V. R., Klym B. P., Rudavs'kyi V. D., Velykyi P. P., and Tolopko Ya. D.</i> The influence of hydrogen on the change of Barckhausen jumps power in ferromagnetics .....	5	49
<i>Goltsov V. A., Lyubimenco E. N., and Gluhova G. L.</i> Equipment, methods and results of investigation of hydrogen elastic degradation of a palladium plate.....	5	55
<i>Kazberuk A.</i> Stress intensity factors for cracks at rounded V-notch vertex.....	5	61
<i>Revenko V. P.</i> Investigation of the 3D stress state in an elastic plate with a circular hole.....	5	71
<i>Sylovaniuk V. P., Marukha V. I., and Onyshchak N. V.</i> Strength of a cracked body partly filled with injection material .....	5	77
<i>Padgurskas J., Rukuiza R., Cesulis H., Amulevicius A., Daugvila A., Davidonis R., and Sipavicius C.</i> The properties and physico-chemical interactions in the system iron–fluor-oligomer .....	5	81
<i>Bychkov S. A. and Grebenikov A. G.</i> The influence of fretting-corrosion on fatigue durability of BT6 alloy structural elements .....	5	91
<i>Tsisar V. P., Kyryliv V. I., Yelisieieva O. I., and Voloshyn V. A.</i> The influence of surface-pulse treatment on oxidation of Fe–0.2C–13Cr–0.3Si steel in lead melt.....	5	100
<i>Podcherniaieva I. O., Panashenko V. M., Vereshchaka V. M., and Oleinyk G. S.</i> Microstructure of laser-spark coating fracture surface on titanium after abrasive wear .....	5	107
<i>Patejuk A.</i> Physicochemical properties of Al–C composite in two-phase production .....	5	113
<i>Chuchman M. P., Riabtsev I. O., Krutsan H. M., Perepliotchykov Ye. F., Diachuk A. I., and Yurkevych R. M.</i> Corrosion and corrosion-mechanical durability of the deposited metal in hydrogen sulphide environment .....	5	119
<i>Gnyp I. P. and Voloshyn M. P.</i> Peculiarities of determination of residual stresses in paint coatings by the method of plates bending .....	5	124
<i>Firstov S. O., Rohul T. H., and Shut O. O.</i> Polycrystals strengthening in transition from the micro- to nanostructured state .....	6	5
<i>Lobanov L., Pozniakov V., Pivtorak V., Mikhodui O., and Orlovs'kyi V.</i> Residual stresses in welded joints of high-strength steels.....	6	13
<i>Pohreliuk I. M., Fedirko V. M., Yaskiv O. I., Dong-Bok Lee, and Tkachuk O. V.</i> The influence of parameters of modifying oxygen-containing environment on titanium alloys oxinitration .....	6	23
<i>Dobrotvor I. H., Stukliak P. D., and Buketov A. V.</i> Determination of ranges of the disperse filler optimal content in epoxy composites .....	6	32
<i>Yasnii P. V., Marushchak P. O., Konovalenko I. V., and Bishchak R. T.</i> Degradation of structure and damage of metallurgical equipment steel by a system of cracks .....	6	40
<i>Paustovskyi O. V., Pasichnyi V. V., Tymofieieva I. I., Moliar O. H., Novikova V. I., Sheludko V. Ye., Mordovets N. M., Ostapenko S. O., Kostenko O. D., and Isaieva L. P.</i> Structure and properties of electric-spark alloyed TiN, TiB <sub>2</sub> and Mo coatings on BT-22 titanium alloy and their transformation under light-thermal treatment .....	6	45
<i>Ivanytskyi Ya. L., Hembara O. V., Titova T. I., Shulhan N. O., Hvozdiuk M. M., Bacharov S.O., and Voronov O. V.</i> Investigation of peeling-resistance in a bimetal joint of oil-chemical reactors in hydrogen environment.....	6	50
<i>Dzioba I. R. and Tsyrulnyk O. T.</i> Assessment of integrity of welded pipes of main gas pipelines by FITNET techniques .....	6	57

<i>Balitskii O. I., Ripei I. V., and Onyshchak O. Ya.</i> Change of 12X1MФ steel impact toughness under FPP steam pipelines operation .....	6	65
<i>Savruk M. P. and Kazberuk A.</i> Stresses in an elastic plane with a periodic system of closely located holes.....	6	70
<i>Kulchytskyi-Zhyhalo R. and Rohovskiy H.</i> Axially symmetric contact problem on indentation of an absolutely rigid shell in an elastic half-space with inhomogeneous coating .....	6	82
<i>Chernets M. V.</i> A contact problem for a cylindrical joint with technological faceting of the element contours .....	6	93
<i>Nekyslykh K. M. and Ostryk V. I.</i> Wedging of an edge crack in an elastic wedge.....	6	100
<i>Musii R. S.</i> Thermal stress state of an electric conductive shell under action of pulse electromagnetic field .....	6	109
<i>Radkevych O. I., Chumalo H. V., and Yurkevych R. M.</i> Corrosion-mechanical behavior of protective coatings of the stop valves of oil-gas field equipment ...	6	117
<i>Herasymenko Yu. S. and Vasyliev H. S.</i> Two-step corrosion rate measurement method .....	6	122
<i>Marynин V. H.</i> Relation between cavitation durability and microhardness of metals.....	6	127

## SHORT REPORTS

<i>Yurkevych R. M.</i> Evaluation of corrosion inhibitors effectiveness in pipe steels in hydrogen-sulphide environments .....	1	117
<i>Slobodian Z. V., Kyryliv V. I., Mahlatiuk L. A., and Kupovych R. B.</i> The influence of inhibitor treatment on corrosion resistance of welded joint zones .....	1	120
<i>Chervinska N. R.</i> Corrosion resistance of MA5 magnesium alloy with electric-arc sprayed coatings.....	4	117
<i>Slobodian Z. V., Kupovych R. B., and Mahlatiuk L. A.</i> The influence of tanin extracts on corrosion resistance of 20 steel in tap water and 5% HCl.....	4	120

## IN SCIENTIFIC CIRCLES

<i>Rytsar D.</i> Defence of dissertations .....	1	123
<i>Stashchuk M. H.</i> Problems of brittle fracture mechanics (scientific seminar).....	1	125
<i>Okhota H. H.</i> Corrosion. Metal protection against corrosion (scientific seminar) ....	1	126
<i>Vasyliv Kh. B.</i> Theoretical and applied tribology (scientific seminar) .....	1	130
<i>Nykyforchyn H. M.</i> Conference on corrosion challenges in industry.....	1	132
<i>Panasyuk V., Dmytrakh I., and Student O.</i> Achievements and prospects of fracture mechanics development .....	4	122
<i>Balytskii O. I.</i> The 12 <sup>th</sup> International Conference on Fracture Mechanics of Materials .....	4	129

## IN THE WORLD OF BOOKS

<i>Balitskii O. I.</i> Effects of hydrogen on materials .....	5	131
<i>List of papers published in "Physicochemical Mechanics of Materials" in 2009</i> ...	6	130
<i>Authors' index</i> .....	6	135