

<b>Contents</b>	
Preface	xi
International Advisory and Organizing Committee	xiii
Program Committee	xv
Words of Welcome	xvii
Phase Transformations in Carbon Materials <i>Z.A. Matysina, D.V. Schur, S.Yu. Zaginaichenko, V.B. Molodkin, A.P. Shpak</i>	1
Hydrogen Solubility in FCC Fullerite <i>D.V. Schur, Z.A. Matysina, S.Yu. Zaginaichenko</i>	25
Controlling Role of Electron Concentration in Plasma - Chemical Synthesis <i>G.N. Churilov</i>	45
Oxygen Source for Isolated Fuel Cells <i>R. Loutfy, V. Shapovalov, E. Veksler</i>	53
Microscopic Characteristics of H Diffusion and Diffuse Scattering of Radiations in H.C.P.-Ln-H (From the Data on Electrical-Resistivity Relaxation) <i>V.A. Tatarenko, T.M. Radchenko, V.B. Molodkin</i>	59
Investigation of Content of Endometallofullerenes Extracts <i>I.E. Kareev, Y.M. Shulga, V.P. Bubnov, V.I. Kozlovski, A.F. Dodonov, M.V. Martynenko, K.B. Zhogova, E.B. Yagubskii</i>	67
An Overview of Hydrogen Storage Methods <i>V.A. Yartys, M.V. Lototsky</i>	75
Alumo- and Borohydrides of Metals: History, Properties, Technology, Application <i>B.M. Bulychev</i>	105
Structural - Phase Transformations in Titanium - Fullerene Films at Implantation of Boron Ions <i>L.V. Baran, E.M. Shpilevsky, G.P. Okatova</i>	115
Field Emission Investigation of Carbon Nanotubes Doped by Different Metals <i>K.N. Nikolski, A.S. Baturin, V.S. Bormashov, A.S. Ershov, L.D. Kvacheva, D.A. Kurnosov, V.E. Muradyan, A.A. Rogozinskiy, D.V. Schur, E.P. Sheshin, A.P. Simanovskiy, Yu.M. Shulga, R.G. Tchesov, S.Yu. Zaginaichenko</i>	123
Development of Methods of Deposition of Discontinuous Nickel Coatings on Powders of AB5 Type Alloys <i>I. Slys, L. Shcherbakova, A. Rogozinskaya, D. Schur, A. Rogozinskii</i>	131

XRD Patterns of Cathode Deposits Formed in Electric arc Sputtering Zr-Me-Graphite Electrodes <i>Yu.M. Shulga, D.V. Schur, S.A. Baskakov, A.P.Simanovskiy, A.A. Rogozinskaya, A.A. Rogozinskiy, A.P. Mukhachev</i>	137
Metal Hydride Accumulators of Hydrogen on the Basis of Alloys of Magnesium and Rare-Earth Metals with Nickel <i>B.P. Tarasov, S.N. Klyamkin, V.N. Fokin, D.N. Borisov, D.V. Schur, V.A. Yartys</i>	143
Synthesis of Nanotubes in the Liquid Phase <i>D.V. Schur, A.G. Dubovoy, E.A. Lysenko, T.N. Golovchenko, S.Yu. Zaginaichenko, A.F. Savenko, V.M. Adeev, S.N. Kaverina</i>	147
Mossbauer Study of Carbon Nanostructures Obtained on Fe-Ni Catalyst <i>T.Yu. Kiseleva, A.A. Novakova, B.P. Tarasov, V.E. Muradyan</i>	153
Determination of an Optimum Performance of PEM Fuel Cell Based on its Limiting Current Density <i>Ayoub Kazim</i>	159
Photoinduced Modifications of the Structure and Microhardness of Fullerite C <sub>60</sub> <i>I. Manika, J. Maniks, J. Kalnacs</i>	167
Investigation on the Carbon Special Form Graphitic Nanofibres as a Hydrogen Storage Materials <i>Bipin Kumar Gupta, O.N. Srivastava</i>	177
Heterometallic Fullerides of Transition Metals with the Composition K <sub>2</sub> MC <sub>60</sub> <i>V.A. Kulbachinskli, B.M. Bulychev, R.A. Lunin, A.V. Krechetov, V.G. Kytin, K.V. Poholok, K. Lips, J. Rappich</i>	185
Characterization of Nanoparticles Processed by arc-Discharge between Carbon Electrodes Containing Ni <sub>2</sub> Y Catalyst <i>M. Leonowicz, Yu.M. Shulga, V.E. Muradyan, M. Wozniak, Wei Xie</i>	193
Protection of Securities by the Application of Fullerenes <i>D.V. Schur, N.S. Astratov, A.P. Pomytkin, A.D. Zolotarenko, T.I. Shaposhnikova</i>	203
Spectrophotometric Analysis of C <sub>60</sub> and C <sub>70</sub> Fullerenes in Toluene Solutions <i>N.S. Anikina, S.Yu. Zaginaichenko, M.I. Maistrenko, A.D. Zolotarenko, G.A. Sivak, D.V. Schur, L.O. Teslenko</i>	207
Effect of the Nature of the Reactor Wall Material on Morphology and Structure of Products Resulted from arc Graphite Sputtering <i>A.D. Zolotarenko, A.F. Savenko, A.N. Antropov, M.I. Maystrenko, R.N. Nikulenko, A.Yu. Vlasenko, V.K. Pishuk, V.V. Skorokhod, D.V. Schur, A.N. Stepanchuk, P.A. Boyko</i>	217
Study of Thermodynamic Parameters of Hydrogen Gas by Grapho-Analytic Method <i>B. Ibrahimoglu, T.N. Veziroglu, A. Huseynov, D. V. Schur</i>	225

Simulation of Operation Heat or Cold-Making Unit with Hydride Heat Pump <i>Yu. I. Shanin</i>	233
Quantum-Chemical Investigations of Single Wall Carbon Nanotube Hydrogenation Processes <i>N.G. Lebedev, I.V. Zaporotzkova, L.A. Chernozatonskii</i>	243
Quantum Chemical Investigations of the Growth Models of Single Wall Carbon Nanotubes on Polyhen Rings, Fullerenes and Diamond Surface <i>N.G. Lebedev, I.V. Zaporotzkova, L.A. Chernozatonskii</i>	259
Covalent-Binding Carbon Nanotube: Simulation of Formation Mechanisms and Energy Characteristics <i>E.E. Mikheeva, L.A. Chernozatonskii, T.Yu. Astahova</i>	279
To the Theory of Formation in Cast Iron of Spherical Graphite <i>A.A. Baranov, D.A. Baranov</i>	283
Modelling of Dehydration and Dehydrogenation in Pure and Ba-, Ca-, Sr- or Y-Modified Zirconia Nanolayer <i>N.V. Tokiy, T.Ye. Konstantinova, D.L. Savina, V.V. Tokiy</i>	291
Metallcontaining Nanoparticles in Carbochain Polymeric Matrixes <i>S.P. Gubin, V.M. Buznik, G.Yu. Yurkov, M.S. Korobov, A.V. Kozinkin, A.K. Tsvetnikov, I.P. Dotsenko</i>	299
X-ray Structural Study of Deposit Formed on Electric arc Sputtering of Me <sub>1</sub> -Me <sub>2</sub> -C Composites <i>A.A. Rogozinskaya, D.V. Schur, I.I. Timofeeva, L.A. Klochkov, A.P. Simanovskiy, A.A. Rogozinskiy</i>	307
Effect of Hydrogen on Delayed Fracture of HCP $\epsilon$ -Steels Based on Fe-Mn Solid Solution <i>B.M. Efros, V.V. Berezovskaya, S.V. Gladkovskii, L.V. Loladze</i>	313
System Combined Automobile Feed on Carbon Nanostructures with Hydrogen Adsorbate Application <i>A.I. Zakharov, V.I. Kostikov, A.S. Kotosonov, T.A. Ivankova, O.A. Milovanova</i>	319
T-Nanoconstructions on the (0001) - Surface of Graphite Based on Carbon (6,6) - Nanotubes <i>A.P. Popov, I.V. Bazhin</i>	325
Three - Dimensional Polymerized Cubic Phase of Fullerenes C <sub>28</sub> <i>A.P. Popov, I.V. Bazhin</i>	329
Nanostructure and Electronic Spectra of Cu-C <sub>60</sub> Films <i>O.P. Dmytrenko, M.P. Kulish, L.V. Poperenko, Yu.I. Prylutsky, E.M. Shpilevskyy, I.V. Yurgelevich, M. Hietschold, F.S. Schulze, J. Ulanski, P. Scharff</i>	333

Hydrogenated Amorphous Silicon Carbide Films as Perspective Tribological Coatings and Semiconductor Layers <i>V.I. Ivashchenko, O.K. Porada, L.A. Ivashchenko, G.V. Rusakov, S.M. Dub, V.M. Popov</i>	339
Vibrational Spectra and Molecular Structure of the Hydrofullerenes C <sub>60</sub> H <sub>18</sub> , C <sub>60</sub> D <sub>18</sub> , and C <sub>60</sub> H <sub>36</sub> as Studied by IR and Raman Spectroscopy and First-Principle Calculations <i>A.A. Popov, V.M. Senyavin, A.A. Granovsky, A.S. Lobach</i>	347
Hydrogen Segregation in the Residual Stresses Field <i>N.M. Vlasov., I.I. Fedik</i>	357
Nanoparticles of Metals and Oxides on Surface of Carbon Fibers are Effective Catalysts of Chemical Transformations of Epoxy Oligomers <i>V.I. Dubkova</i>	363
Theory of Transport Phenomena on Plasma – Metal Hydride Interface <i>V.N. Borisko, S.V. Borisko, D.V. Zynov'ev, Ye.V. Klochko</i>	375
The Ultradisperse Formations of Free Carbon in Alloys of Iron <i>D.A. Baranov, A.A. Baranov, I.V. Leirich</i>	383
Simulation of Fullerene Irradiation and Fragmentation by Particle Beams <i>N.V. Makarets, V.V. Moskalenko, Yu.I. Prylutskiy., O.V. Zaloyilo</i>	387
Lithium in Nanoporous Carbon Materials Produced from SiC <i>I.M. Kotina, V. M. Lebedev, A.G. Ilves, G.V. Patsekina, L.M. Tuhkonen, A.M. Danishevskii, S.K. Gordeev, M.A. Yagovkina</i>	391
Scientific-Technical Prerequisites in Ukraine for Development of the Wind-Hydrogen Plants <i>V.A. Glazkov, A.S. Kirichenko, B.I. Kushnir, V.V. Solovey, A.S. Zhiron, D.V. Schur</i>	399
Synthesis and Structural Peculiarities of the Exfoliated Graphite Modified by Carbon Nanostructures <i>Yu.I. Sementsov, G.P. Prikhodko, S.L. Revo, A.V. Melezhyk, M.L. Pyatkovskiy, V.V. Yanchenko</i>	405
Modeling of TDS-Spectra of Dehydrating <i>Yu.V. Zaika, I.A. Chernov</i>	415
Some Schematics of Use of Hydride Devices in the Automobile <i>Yu.I. Shanin</i>	427
Electronic-Microscopic Investigation of Nanoscale Products of Catalytic Pyrolysis of Toluene <i>P.M. Sylenko, A.M. Shlapak, S.M. Kaverina, D.V. Schur, S.O. Firstov, V.V. Skorokhod</i>	437

Application of the Metal Hydride Activation Effect of Hydrogen Isotopes for Plasma Chemical Technologies <i>Yu.F. Shmal'ko, Ye.V. Klochko</i>	447
Vibrational Spectra of C <sub>60</sub> Polymers: Experiment and First-Principle Assignment <i>V. M. Senyavin, A. A. Popov, A. A. Granovsky</i>	457
Feasibility of Hydrogen Energy Production Through Natural Gas Steam Reformation Process in the UAE <i>A. Kazim</i>	467
Isotope Effects in the Quasielastic Mössbauer Absorption of <sup>57</sup> Fe in NbH <sub>0,78</sub> and NbD <sub>0,76</sub> <i>R. Wordel, F.E. Wagner</i>	473
Electrical Resistance of Binary Ordered Alloys with HCP Structure in the Presence of Impurity Atoms or Thermal Vacancies <i>Z.A. Matysina, S.Yu. Zaginaichenko, D.V. Schur, A.Yu. Vlasenko</i>	481
Hydriding Properties of Magnesium-Salt Mechanical Alloys <i>E.Yu. Ivanov, I.G. Konstanchuk, V.V. Boldyrev</i>	489
Hydrogen Sorption and Electrochemical Properties of Intermetallic Compounds La <sub>2</sub> Ni <sub>7</sub> and La <sub>2</sub> Ni <sub>6</sub> Co <i>E.E. Levin, P.A. Donskoy, S.A. Lushnikov, V.N. Verbetsky, T.Ya. Safonova, O.A. Petrii</i>	503
Hydride Phases in Sm <sub>2</sub> Fe <sub>17</sub> –NH <sub>3</sub> System <i>V.N. Fokin, Yu.M. Shul'ga, B.P. Tarasov, E.E. Fokina, I.I. Korobov, A.G. Burlakova, S.P. Shilkin</i>	511
Optical Investigation of Hydrogen Intercalation-Deintercalation Processes in Layered Semiconductor γ-InSe Crystals <i>Yu.I. Zhirko., Z.D. Kovalyuk., M.M. Pyrlja., V.B. Boledzyuk</i>	519
Quantum Topology and Computer Simulation of Confined Hydrogen Atom Inside Spherical-Form Gap <i>S.A. Beznosyuk, D.A. Mezentsev, M.S. Zhukovsky, T.M. Zhukovsky</i>	531
Calorimetric Investigation of the Hydrogen Interaction with Ti <sub>0,9</sub> Zr <sub>0,1</sub> Mn <sub>1,3</sub> V <sub>0,5</sub> <i>E.Yu. Anikina, V.N. Verbetsky</i>	539
Interaction in NbVCo-H <sub>2</sub> and NbVFe-H <sub>2</sub> Systems under Hydrogen Pressure up to 2000 atm. <i>S.A. Lushnikov., V.N. Verbetsky</i>	547
Effect of Hydrogenation on Spin-Reorientation Phase Transitions in R <sub>2</sub> Fe <sub>14</sub> BH <sub>x</sub> (R = Y, Ho, Er) Compounds <i>I.S. Tereshina., G.S. Burkhanov., O.D. Chistyakov., N.B. Kol'chugina., S.A. Nikitin., H. Drulis</i>	553

The Cluster Growth Mechanism of Nanostructured Diamond <i>V. Melnikova</i>	557
Specific Features in Thermal Expansion of $YFe_{11-x}Co_xTiH$ Single Crystals <i>E. Tereshina., K. Skokov., L. Folcik., S. Nikitin., H. Drulis</i>	563
Study of Structure, Hydrogen Absorption and Electrochemical Properties of $Ti_{0.5}Zr_{0.5}Ni_yV_{0.5}Mn_x$ Substoichiometric Laves Phase Alloys <i>T.A. Zotov, V.N. Verbetsky, O.A. Petrii, T.Y. Safonova</i>	569
Effect of Stress on Accumulation of Hydrogen and Microstructure of Silicon co-Implanted with Hydrogen and Helium <i>A. Misiuk, J. Ratajczak, A. Barcz, J. Bak-Misiuk, A. Shalimov, B. Surma, A. Wnuk, J. Jagielski, I.V. Antonova</i>	579
Hydrogen Storage Materials and their Maximum Ability on Reversible Hydrogen Sorption <i>N.M. Vlasov, A.I. Solovey, I.I. Fedik, A.S. Chernikov</i>	593
The Study of Changes of Physico - Mechanical Properties of Materials in a Condensed State under Hydrogen Influence Using Fault Detection Acoustic Microscopy Methods <i>A.V. Budanov., A.I.Kustov., I.A. Migel</i>	603
Diffusion of Hydrogen in Amorphous, High Deformed and Nanocrystalline Alloys <i>N.I. Timofeyev, V.K. Rudenko, V.V. Kondratyev, A.V.Gapontsev, A.N. Voloshinskii</i>	617
Diffusion of Hydrogen in Binary and Ternary Disordered Alloys <i>N.I. Timofeyev, V.K. Rudenko, V.V. Kondratyev, A.V.Gapontsev, A.N. Voloshinskii</i>	635
Author Index	653
Subject Index	657