

## CONTENTS

<b>L.Petrov</b> , Atanas Aleksandrov Andreev (1936-1997).....	3
Publications of Prof. Atanas Andreev.....	6
<b>K. Kumbilieva, L. Petrov, S. Kiperman</b> , Selectivity Changes Related to the Catalyst Deactivation and the Mechanism of Model Bimolecular Reactions.....	23
<b>B. Ernst, J.-P. Hindermann, A. Kiennemann</b> , Syngas Chemistry on Co/SiO <sub>2</sub> and Cerium or Lanthanum Promoted Cobalt Catalysts. Correlation Between Activity, Selectivity Studies and Mechanisms.....	37
<b>D. Andreeva, V. Idakiev, T. Tabakova, R. Giovanoli</b> , Low- temperature Water-gas Shift Reaction on Au/TiO <sub>2</sub> , Au/α-Fe <sub>2</sub> O <sub>3</sub> and Au/Co <sub>3</sub> O <sub>4</sub> .....	59
<b>E. Gaigneaux, J. Naud, J.-L. Knoden, R. Maggi, P. Ruiz, B. Delmon</b> , Deactivation of Iron Phthalocyanine in the Oxidation of Cyclohexene by H <sub>2</sub> O <sub>2</sub> . Effects of Encapsulation in Y-Zeolite.....	69
<b>I. Mitov, A. Andreev</b> , In Situ Mössbauer Spectroscopic Investigation of Iron Spinel Catalysts for the Water-gas Shift Reaction.....	82
<b>L. Borkó, Z. Schay, L. Guczi</b> , Surface Initiated Gas-phase Reaction in Oxidation of m-Xylene on Supported Palladium Catalysts.....	93
<b>Ch. Bonev, G. Kadinov, A. Palazov</b> , On the Hysteresis between Carbon Monoxide Adsorption and Desorption Sequences in Pt/Al <sub>2</sub> O <sub>3</sub> and Pt-Pb/Al <sub>2</sub> O <sub>3</sub> Catalysts.....	103
<b>D. Panayotov, D. Mehandjiev</b> , Modelling the Mechanism of CO + NO and CO + NO + O <sub>2</sub> Interactions on the Surface of Oxide Spinel Cu <sub>x</sub> Co <sub>3x</sub> O <sub>4</sub> .....	110
<b>M. Wark, G. Schulz-Ekloff, N. Jaeger</b> , UV/Vis Diffuse Reflectance Study on the Formation of Zinc Oxide Clusters in Zeolites.....	129
<b>K. Jiratova, N. Kostova, B. Sow, A. Spojakina</b> , Catalytic Oxidation of Ethanol in the Presence of Silica Supported 12-Heteropoly-molybdates.....	143
<b>Z. Paál, T. Buchholz, G. Resofszki</b> , Initial Catalytic Activity of Pt/Sulfated Zirconia Catalysts of Different Pt Loading.....	150
<b>K. Hadjiivanov, D. Klissurski</b> , Use of CO as an IR Probe Molecule for Testing Metal Oxide Surfaces without Sample Activation.....	159
<b>J. Fišer, D. Gulková, M. Zdrážil</b> , Hydrodesulphurization of Benzothiophene over Magnesia Supported Ni, Mo and Ni-Mo Sulphide Catalysts Prepared by Non-aqueous Impregnation: High Activity and Synergistic Shift in Selectivity to Dihydrobenzothiophene.....	168
<b>G. Vissokov</b> , Physicochemical and Kinetic Studies of the Reduction and Activity of Ammonia-Synthesis Catalysts Regenerated in Electric-Arc Plasma.....	180
<b>J. Ramírez, R. Cuevas, P. Castillo, M. Rojas, T. Klimova</b> , Characterization and Catalytic Behaviour of Mo/Al <sub>2</sub> O <sub>3</sub> -ZrO <sub>2</sub> (X) Hydrotreating Catalysts.....	199
<b>P. Kovacheva, K. Arishtirova, N. Davidova, H. Karge</b> , Oxidative Methylation of Toluene with Methane on Alkali Containing Zeolite Catalysts Prepared by Solid-State Ion Exchange.....	210
<b>R. Marchidan, D. Crisan, E. Ivana, M. Gabrovska, R. Edreva-Kardjieva, A. Andreev</b> , Stability of Al- and M <sup>2+</sup> -Rich Hydrotalcite-Like Structures.....	217
<b>E. Manova, I. Mitov, R. Clement</b> , Catalytic Sulfide Ions Oxidation over MPS <sub>3</sub> (M = Ni, Fe), Ni <sub>1-x</sub> Fe <sub>x</sub> PS <sub>3</sub> (x = 0.4, 0.7) Layered Compounds and Some Related Intercalation Compounds.....	227
<b>S. Kiperman, N. Gaidai</b> , On the Stability and Reactivity of Adsorbed Forms in Catalysis by Metals.....	242
<b>M. Farinha Portela, C. Dias, M. Oliveira</b> , Measuring Activity of Oxide Catalysts: Standardization Procedures..	256
<b>T. Tsoncheva, U. Lohse, Ch. Minchev</b> , Conversion of Methanol on MeAPO-44 (Me = Co, Mg, Zn) Molecular Sieves.....	269
<b>J.-S. Tsaih, A. Weiss, M. Traykova, N. Davidova</b> , Kinetics and Selectivity of Methane Oxidation over a 10% La <sub>2</sub> O <sub>3</sub> /MgO Catalyst.....	277

<b>V. Iliev, V. Alexiev, L. Bilyarska</b> , Oxidation and Photooxidation of 2-Mercaptoethanol and Sodium Sulfide Catalyzed by Immobilized Molybdenum Sulfide and Transition Metal Phthalocyanine Complexes.....	286
<b>A. Malinowski, W. Juszczysz, J. Zielinski, Z. Karpinski, Z. Kowalczyk</b> , Hydrodechlorination of $\text{CCl}_2\text{F}_2$ (CFC-12) over Supported Ruthenium Catalysts.....	295
<b>S. Damyanova, A. Dotzeva, Ch. Vladov, L. Petrov, P. Grange, B. Delmon</b> , A Comparative Study of $\text{Mo/ZrO}_2\text{-Al}_2\text{O}_3$ and $\text{Mo/ZrO}_2\text{-SiO}_2$ Catalysts for Hydrodesulfurization of Thiophene.....	306
<b>M. Gabrovska, V. Idakiev, A. Andreev</b> , Ni-Al Layered Double Hydroxides: Catalysts for the Water-gas Shift Reaction.....	314
<b>N. Neshev, V. Alexiev, V. Parvanov, Tz. Mineva, V. Chihaiia, G. Munteanu</b> , Electronic Structure of $\text{NiO}$ Calculated by Density Functional Theory Method.....	323
<b>I. Kozhevnikov, A. Elias, M. Koleva, N. Koltsov, L. Petrov</b> , Modeling of Hysteresis Dependences in the Reaction of Formic Acid Oxidation on Palladium Catalyst.....	330
<b>N. Yordanov, M. Mihaylov</b> , EPR Study of Mixed-Ligand (Diethyldiselenocarbamato) (diisopropyl-dithiophosphato) Copper(II) Complex in Solutions.....	338
<b>K. Ivanov</b> , Regeneration of Iron-Molybdenum Oxide Catalysts for Methanol Oxidation.....	344
<b>N. Kostova, A. Spojakina, D. Savova, K. Jiratova</b> , $\gamma$ -Irradiation Effect on Hydrodesulfurization Activity of $\text{Mo}/\gamma\text{-Al}_2\text{O}_3$ Catalysts.....	351
<b>Ya. Neinska, V. Mavrodinova, V. Kanazirev, Ch. Minchev</b> , Acidity of Indium-Modified SAPO Molecular Sieves.....	357
<b>L. Petrov, Kh. Maximov, L. Dimitrov</b> , Determination of Diffusion Characteristics of Zeolites.....	365
<b>L. Ilieva, G. Munteanu, D. Andreeva</b> , Effect of Gold on the Reducibility of Cobalt Oxide in $\text{Au/Co}_3\text{O}_4$ Catalyst for the Water-Gas Shift Reaction.....	378
<b>K. Tashkova</b> , Catalysts for $\text{S}^{2-}$ Oxidation Obtained by Co(II), Fe(II) and Mn(II) (Salophen) Immobilisation on Carrier's Surface.....	383
<b>Ch. Vladov, A. Elias, A. Dotseva, I. Schtereva, N. Houbenov, I. Chofraligova, L. Petrov</b> , Influence of Pretreatment Conditions on the Performance of Fibrous Co-Mo HDS Catalysts.....	389
<b>A. Spojakina, N. Kostova, D. Savova, V. Minkova, T. Budinova, O. Solcova</b> , Activated Carbons as Supports for Hydrodesulphurization Catalysts.....	398
<b>S. Krustev</b> , Preparation of $\text{Cr}_2\text{WO}_6$ and Its Catalytic Behaviour toward Methanol Oxidation.....	408
<b>L. Dimitrov, L. Petrov</b> , Hydrothermal Transformation of Hexagonal Mesoporous Silica (HMS) and Titanium Silicate (Ti-HMS) in the Presence of Tetraalkylammonium Hydroxides.....	414
<b>I. Mitov, V. Blaskov, R. Stoyanova, V. Mitrov</b> , Study of the Mechanoochemical Activation of Fe(III) Molybdate...422	
<b>V. Mavrodinova, V. Kanazirev, L. Kozova</b> , <i>m</i> -Xylene Transformation Reaction as a Test for the Proton Acidity of $[\text{Ga}]MFI$ and $\text{Ga}_2\text{O}_3/[\text{Ga}]MFI$ Zeolite Catalysts.....	430
<b>M. Mitov, A. Popov, I. Dragieva</b> , Electrocatalytic Phenomena on Electrodes Prepared from Hydrogen-Containing Nanoparticles.....	441
<b>D. Klissurski, N. Abadzhjieva, S. Kassabov, D. Simeonov, D. Kovacheva</b> , Selective Oxidation of Methanol on Fe-Sb-O Catalysts.....	448
<b>V. Kafedjiysky, R. Edreva-Kardjieva, D. Alexieva</b> , Diffuse Reflectance Spectra of the Oxide Forms of $\text{Mo(W,Re)}/\text{Al}_2\text{O}_3$ Catalysts Doped with Nickel and Potassium.....	459
<b>S. Christoskova, M. Stojanova, G. Ivanov, D. Mehandjiev</b> , Magnetic Properties and Catalytic Activity of a Nickel Oxide System in Oxidation of Carbon Monoxide.....	470
<b>N. Neshev, E. Proynov, Tz. Mineva</b> , Electron Localization, Charge Fluctuations and Local Softness: Real Space and LCGTO Representations in the Kohn-Sham DFT Method.....	482
<b>D. Filkova, L. Petrov</b> , The Role of Solid Solutions as Catalysts for Oxidative Coupling of Methane.....	512
<b>G. Kadinov, S. Todorova</b> , Infrared Spectroscopy Study of Carbon Monoxide Oxidation over Alumina-Supported Palladium and Palladium-Cerium Catalysts under Transient Conditions.....	518
<b>D. Stratiev, A. Sokourov, J. Batchvarova</b> , Matching Fluid Catalytic Cracking Catalyst Properties to Feed Properties to Optimise the FCC Unit Performance.....	528

<i>D. Stratiev, D. Minkov</i> , Investigation of the Influence of Basic Nitrogen Compounds on Yield Distribution in Fluid Catalytic Cracking.....	536
<i>L. Dimitrov, L. Petrov, R. Nickolov</i> , Mesoporous Zirconium-containing Silicate.....	544