

CONTENTS

Problems of Planetology, Cosmochemistry and Meteoritica 5

Dubinsky A.Yu., Popel S.I. On a possible mechanism of light-induced reactions in the lunar regolith <i>UDC 523.34—36</i>5	5
Shornikov S.I., Yakovlev O. I. Experimental study of evaporation of the Ca-Al-inclusions of chondrite melts.....8	8
Tselmovich V.A. ¹ , Maxe L P. ² Recognition of cosmic and atmospheric dust particles. <i>UDC 628.511</i>10	10
Tselmovich V.A. ¹ , Shelmin V.G. ² Meteorite, blast, or natural fire? <i>UDC 523.6; 669.1; 614.841</i>13	13
Ustinova G.K. Perspectives of cosmogenic radionuclide research in the fresh fallen chondrites. <i>UDC 523.165</i>17	17
Kuyunko N.S. The thermoluminescent researches of equilibrium ordinary chondrites of shock classes S1-S3 <i>UDC 550.4221</i>	

Mineral equilibria at high PT-parameters 25

Khodorevskaya L.I., Kosova S.A., Safonov O.G., Viryus A.A. Experimental study of the graphite-mediated partial melting of two-mica schist at a pressure of 5 kbar and a temperature of 900 °C <i>UDC 552.13</i>25	25
Kuzyura A.V., Litvin Yu.A., Spivak A.V. Peritectic reaction of olivine in diamond forming system carbonate – silicate – (C-O-H)-fluid at 6 GPa <i>UDC 123.456</i>28	28
Chertkova N.V. ¹ , Spivak A.V. ¹ , Burova A.I. ² , Litvin Yu.A. ¹ , Zakharchenko E.S. ¹ , Kuzyura A.V. ¹ , Bovkun A.V. ² , Safonov O.G. ^{1,2} , Bobrov A.V. ^{1,2,3} Experimental investigation of stability fields for water-bearing minerals in the FeTiO ₃ -Mg ₂ SiO ₄ -H ₂ O system at 6 GPa.....31	31
Fedkin V.V. Combined processes of eclogite-glaucophane schist formation: I. Maksyutov complex, Southern Ural <i>UDC 549.6+552.16:552.48</i>	32
Fedkin V.V. ¹ , Kotova L.S. ^{1,2} Combined processes of eclogite-glaucophane schist formation: II Atbashi, Southern Tien Shan <i>UDC 549.6+552.16:552.48</i>	36
Gorbachev N.S., Kostyuk A.V., Nekrasov A.N., Gorbachev P.N., Sultanov D.M. Distribution of Co, Ni, Re, Os, Pt between Fe-metallic and Fe-sulphide melts in the Fe–FeS–C system at 4 GPa, 1400 °C: fractionation, chalcophilic and siderophilic properties <i>UDC 123.456</i>39	39
Iskrina A.V. ^{1,2} , Bobrov A.V. ^{1,2,3} , Spivak A.V. ² , Zakharchenko E.S. ² , Khasanov S.S. ⁴ , Kuzmin A.V. ⁴ Experimental <i>in situ</i> investigation of postspinel phases in the Mg-Al-Cr-O system up to 30 GPa <i>UDC 549.02</i>	43
Ivanova M.V. ¹ , Bobrov A.V. ^{1,2} Phase relations in mantle rocks at the lunar lower mantle/core boundary: evidence from experiments.....44	44

Thermodynamic properties of minerals and fluids 49

Brichkina E.A., Voronin M.V., Osadchiy E.G. Thermodynamic properties of krennerite (AgAu ₃ Te ₈) and silvanite (AgAuTe ₄): experimental determination by the EMF method <i>UDC 544.31</i>	49
Persikov E.S. ¹ , Bukhtiyarov P.G. ¹ , Shaposhnikova O.Y. ¹ , Aranovich L.Ya. ² , Nekrasov A.N. ¹ , Kosova S.A. ¹ Features of crystallization of andesite melt at moderate hydrogen pressures (experimental study) <i>UDC 552.11</i>	51
Shornikov S.I., Demidova S.I. Thermodynamic properties of the CaO – P ₄ O ₁₀ melts.....55	55
Shornikov S.I. ¹ , Slobodov A.A. ² Thermodynamic properties of the SiO ₂ –P ₄ O ₁₀ melts.....57	57
Shornikov S.I. ¹ , Golyapa E.S. ² Thermodynamic properties of the MgO–P ₄ O ₁₀ melts.....60	60
Slobodov A. A. ^{1,4} , Shornikov S. I. ² , Radin M. A. ³ , Vorozhtsova Yu. S. ⁴ , Ivanova A. N. ⁴ , Efimov R. D. ⁴ Ensuring of thermodynamic databases efficiency for physico-chemical simulation and calculation.....63	63
Koroleva O.N. Nonlinearity of dynamic and relaxation properties of mixed-alkali silicate glasses	67
Voronin M.V. ¹ , Polyakov V.B. ² , Osadchii E.G. ¹ , Sipavina L.V. ¹ Equilibrium iron isotope factors for troilite from mössbauer spectroscopy data: a new evaluating tecnique <i>UDC 544.582.6</i>	70
Korepanov Ya.I. ¹ , Chareev D.A. ¹ , Osadchii V.O. ¹ , Osadchii E.G. ¹ Thermodynamic properties of (Ag,Pd) ₂₂ Se ₆ determined by emf method with solid state elelctrolyte in temperature range of 550-723K <i>UDC 550.4.02</i>	74

Synthesis of minerals 78

Kotelnikov A.R., Suk N.I., Akhmedzhanova G.M., Drozhzhina N.A. Unit cell parameters of triple solid solutions of clinopyroxenes gedenbergite – diopside – aegirine. <i>UDC 552.33:552.121+550.89:549.07</i>	78
Kotelnikov A.R. ¹ , Shchekina T.I. ² , Suk N.I. ¹ , Kotelnikova Z.A. ³ , Antonovskaya T.V. ⁴ Structural ordering of feldspars as an indikator of the temperature of mineralogenesis <i>UDC 552.08:550.89</i>	79
Kotelnikov A.R., Suk N.I., Akhmedzhanova G.M. Study of solid solutions of Ga-containing feldspars <i>UDC 550.4:549.651.1</i>	82

Setkova T.V., Spivak A.V., Balitsky V.S., Bublikova T.M. Synthesis and spectroscopic studies of NaGaSi ₃ O ₈ crystals with albite structure <i>UDC: 54.057:543.42</i>	84
Spivak A.V. ^{1,*} , Setkova T.V. ¹ , Gorelova L.A. ² , Vereshchagin O.S. ² , Kovalev V.N. ^{1,2} , Zakharchenko E.S. ¹ , Borovikova E.Yu. ³ Synthesis and high-temperature behavior of Ga ₃ GaGeO ₈ <i>UDC 54.057:543.42</i>	86

Hydrothermal equilibria and ore formation

90

Alekseyev V.A. Hypotheses of agate formation: Review and critical analysis	90
Korzhinskaya V.S., Kotova N.P. The problem of hydrothermal mass transfer and deposit of tantalum and niobium during the formation of their deposits (according to experimental data).....	93
Kotova N.P. Experimental study of the effect of fluoride concentration and fluid pressure on Nb ₂ O ₅ solubility.	97
Novikov M.P., Gorbachev P.N. On the nature and quantitative content of water in aqueous phosphates of rare earths elements with the structure of rhabdofan <i>UDC 550.41 + 553.2</i>	99
Redkin A.F., Kotova N.P. Study of romeite solubility in NaF solutions at 800 °C, 200 MPa and Cu ₂ O-CuO buffer.....	101
Rusak A.A. ¹ , Shchekina T.I. ² Mineral parageneses of cryolite-containing rare-metal deposits <i>UDC 553.08, 552.13</i>	105
Balabin A.I. Linear polymerization of water and ions as the mechanism behind liquid immiscibility phenomena in water-salt systems <i>UDC 544.344.2</i>	108
Bublikova T.M., Setkova T.V., Balitsky V.S. Stability conditions and solubility of solid phases in the CuO – CO ₂ – H ₂ O system at temperatures up to 100 °C <i>UDC 553.4:549.01:549.743</i>	114
Kovalev V.N. ¹ , Thomas V.G. ² , Setkova T.V. ³ , Zubkova N.V. ¹ , Spivak A.V. ³ , Fursenko D.A. ² Crystal growth of phenakite-like solid solution and structural spectroscopic study <i>UDC 548.55, 548.545, 549.057, 549.621.21</i>	117
Rubtsova E.A. ¹ , Akinfiev N.N. ¹ , Zotov A.V. ¹ , Tagirov B. R. ¹ Experimental modeling of Pd transport by sulfide hydrothermal fluid <i>UDC 550.4.02</i>	121
Setkova T.V. ¹ , Balitsky V.S. ¹ , Golunova M.A. ¹ , Balitskaya L.V. ¹ , Bublikova T.M. ¹ , Lakhova A.I. ² , Petrov S.M. ² Interaction of hydrothermal solutions with domanic rock of Alekseevskoe deposit, experimental studies using synthetic aqueous-hydrocarbon inclusions in quartz <i>UDC: 553.985</i>	124

The formation and differentiation of magmas

127

Bychkov D.A., Gnuchev Ya.Yu., Koptev-Dvornikov E.V. Calculation of saturated water contents in silicate melts in equilibrium with a pure water fluid <i>UDC 552.112</i>	127
Bychkov D.A., Koptev-Dvornikov E.V. Comparison of simulation results of series of quenching experiments using cryminal and melts programs <i>UDC 550.41</i>	130
Chevychelov* V.Y., Viryus A.A., Kotelnikov A. R., Suk N.I. Formation of carbonate-alkaline and carbonate-silicate melts as a result of low-pressure and high-temperature melting of marly limestone <i>UDC 550.42; UDC 550.42</i>	133

Physical chemical properties of geomaterials

138

Salavatova D. S., Bychkov D. A., Fiaizullina R.V. The Maikop series clays and mud volcano clays adsorption properties on mercury (ii) ions <i>UDC 550.4.02 550.41 550.424</i>	138
---	-----

Experimental geoecology

142

Karaseva O.N., Lakshtanov L.Z., Khanin D.A., Proskuryakova A.S. Influence of pH and organic ligands on dissolution kinetics of natural silicates	142
Rusakova M.-A., Drozdova O. Y., Lapitsky S.A. Forms of heavy metals in the river waters of the boreal zone during the summer low water	145

Interaction in the systems of fluid–melt–crystal

150

CONTENTS

Bukhtiyarov P.G., Persikov E.S., Shaposhnikova O.Y., Nekrasov A.N. Foundations of the method of complete extraction of metals (Fe, Ni, Co) from rocks and poor ores at moderate hydrogen pressures. (Preliminary results) <i>UDC 123.456</i>	150
Kotelnikov A.R., Korzhinskaya V.S., Suk N.I., Novikov M.P., Van K.V. Experimental investigations of solubility of $Zr_{0.5}Hf_{0.5}SiO_4$ solid solution in silicate melts <i>UDC 550.89</i>	153
Shchekina T.I. ¹ , Rusak A.A. ² , Zinovieva N.G. ¹ , Alferyeva Ya. O. ¹ , Kotelnikov A. R. ³ Distribution of thorium and uranium between silicate and salt alkali-aluminum-fluoride melts in a granite system at 700 °C and 800 °C and 1 kbar <i>UDC 552.11</i>	155
Suk N.I., Kotelnikov A.R. Wolframite solubility in aluminosilicate melt <i>UDC 550.89</i>	159
Suk N.I., Kotelnikov A.R., Viryus A.A. Features of loparite dissolution in aluminosilicate melts <i>UDC 550.89</i>	161
Chevychelov* V.Y., Viryus A.A. On the dissolution of Ta-Nb minerals in granitoid melts <i>UDC 550.42</i>	164
Chevychelov V.Y. On the dissolution of tantalite in model acidic and alkaline melts <i>UDC 550.42</i>	166

AUTHORS INDEX

170