



## CONTENT

---

---

### *MATHEMATICS*

---

---

***Akopyan R.S.***

About the admissible speed of approaching to zero  
of Gaussian curvature of minimal surface over strip domain ..... 4

***Bashlaeva I.A.***

Extreme examples of equilibrium in the model of network competition ..... 9

***Zhuravlev I.V.***

An implicit function theorem for Sobolev mappings ..... 13

***Klyachin A.A.***

The variational equality for the functional of the general form ..... 18

***Kurmakaev R.F., Losev A.G.***

On the asymptotic behaviour unbounded solutions  
of the elliptic equation on the model Riemannian manifolds ..... 30

### *APPLIED MATHEMATICS*

---

---

***Voronin A.A., Kharitonov M.A.***

Constrained dynamic optimization model of organization's operating core ..... 41

***Zhumaliev A.G., Khrapov S.S.***

A numerical scheme based on the combined SPH-TVD approach: simulation of the shock front ..... 60

***Vasilev E.I., Vasilyeva T.A., Kiseleva M.N.***

Multi-implicit SD-methods for stiff systems of differential equations ..... 68

### *CHEMICAL PHYSICS*

---

---

***Zatrudina R.Sh., Ivina K.S.***

IR-spectrum of amide of  $\beta$ -pyridinecarboxylic acid ..... 78

---

---

**CONTENT**

---

---

***Rogozina M.V., Ionkin V.N., Ivanov A.I.***

Influence of solvent viscosity on thermal product yield of charge separation  
from second excited state in zinc-porphyrin derivatives ..... 83

---

---

***COMPUTER MODELLING***

---

---

***Pisarev A.V.***

Digital terrain model actualization of Volga-Akhtuba floodplain based on GPS measurement  
of coastlines during flooding ..... 91

---

---

***MATHEMATICAL PHYSICS***

---

---

***Stadnyk I.P., Filippov D.M.***

Increasing of the accuracy of calculation of plane-parallel magnetic field  
in piecewise-homogeneous mediums by the double layer method ..... 96

---

---

***PERSONALITIES***

---

---

Kovalenko Iliia Gennad'evich (On the 50th anniversary) ..... 102

ABOUT THE AUTHORS ..... 107