## NATIONAL ACADEMY OF SCIENCES OF UKRAINE

# INSTITUTE OF TELECOMMUNICATIONS AND GLOBAL INFORMATION SPACE

## V.M. GLUSHKOV INSTITUTE OF CYBERNETICS

## INSTITUTE FOR ECONOMICS AND FORECASTING

## MATHEMATICAL MODELING IN ECONOMY

No. 3-4 (9), July-December, 2017

International scientific journal

Founded in July 2014. The journal is published 4 volume a year

The journal is included in the List of Scientific Professional Editions of Ukraine which may be published results of Ph.D., Doctorate theses in areas of physical and mathematical, technical and economic science (Order of the Ministry of Education and Science of Ukraine from 09.03.2016. No. 241)

**KYIV 2017** 

#### EDITORIAL BOARD

Chief editor – S. O. Dovhyi, Dr. Phys.-Math. Sc., corresponding member of NASU Deputy chief editor - O. M. Trofymchuk, Dr. Tech.Sc., corresponding member of NASU

#### The members of the Editorial Board:

V.P. Vyshnevsky, Dr. Econ., full member of NASU

V.M. Geetc, Dr. Econ., full member of NASU

L.F. Hulianytskyi, Dr.Tech.Sc.

Yu.I. Kalukh, Dr. Tech.Sc.

Yu.G. Kryvonos, Dr. Phys.-Math. Sc., full member of NASU

S.I. Lewicki, Dr. Econ.

R.M. Lepa, Dr. Econ.

O.O. Lubich, Dr. Econ.

V.O. Romanov, Dr. Tech. Sc.

**V.A. Pepelyaev**, Dr. Phys.-Math. Sc.

V.O. Petrukhin, Dr. Tech. Sc.

**S.K. Polumiienko**, Dr. Phys.-Math. Sc.

O.G. Rogozhin, Dr. Econ.

I.V. Sergienko, Dr. Phys.-Math. Sc.,

full member of NASU

M.I. Skrypnichenko, Dr. Econ., corresponding member of NASU

**D.V.** Stefanyshyn, Dr. Tech. Sc.

**P.I. Stetsyuk**, Dr. Phys.-Math. Sc.

V.O. Ustimenko, Dr. Phys.-Math. Sc.

#### INTERNATIONAL EDITORIAL BOARD

E.N. Veduta, Dr. Econ., Prof., Russia

M. Vochozka, Prof., Czech Republic

R. Espejo, Prof., UK

A. Krajka, Prof., Poland

A. Leonard, Prof., Canada

P. Mikolajczak, Prof., Poland

E.A. Nurminski, Dr. Phys.-Math. Sc.,

Prof., Russia

V. M. Polterovich, Dr. Econ., Prof., Acad.

RAS, Russia

V. I. Suslov, Dr. Econ., Prof., corresponding member RAS, Russia Yu.S. Kharin, Dr. Phys.-Math. Sc., Prof., corresponding member NASB, Belarus

G. Shears, Prof., UK

M. Jachimovich, Dr. Math. Sc., Prof., Full member of the Montenegrin Academy

of Sciences and Arts,

Podgorica, Montenegro

Recommended for publication by scientific Council of the Institute of telecommunications and global information space of NAS of Ukraine (Protocol № 10 from 15.12.2017)

The journal publishes original articles and reviews, materials of problem and discussion nature, scientific and practical materials on mathematical modeling in different areas of management, informational support of process of modeling and forecasting, development of cybernetic component and the usage of modern hardware and software tools for mathematical modeling.

#### THE BASIC THEMATIC SECTIONS OF THE JOURNAL

- Informational technologies in economy
- Mathematical and informational models
- in economy
- Analysis, evaluation and forecasting in economy
- Discussion posts

#### OF THE ADDRESS **EDITORIAL OFFICE:**

03186, Kyiv 186, 13 Chokolovsky Blvd., Institute of Telecommunications and Global Information Space of NAS of Ukraine Phones: (044) 245-87-97; (044) 524-22-62

Certificate of registration KB № 20259-10659 P, 14.07.2014 The electronic version of the journal in the Internet www.mmejournal.in.ua

in Ukrainian, Russian and English

## **CONTENTS**

## INFORMATIONAL TECHNOLOGY IN ECONOMY

Game-Theoretical		Model	of	Balanced	Technological	4
Development					•	
Veduta E.N., Dzhakubova T.N. Economic science and economic-mathematical modeling						10
Kraskevich V.E., S Innovation engineer			of dec	ision-makin	g support	23
MATHEMATIC	CAL AND IN	NFORM <i>A</i>	ATIO	NAL MODI	ELS IN ECONO	MY
Makarenko I.P.  Modeling of fina environment						28
Marko M. Y., Tsegelik H.H.  An approximate method for solving assignment problem						42
ANALYSIS,	EVALUATI	ON AND	FOR	ECASTING	G IN ECONOMY	7
Stefanyshyn D.V. Improving diagnostic models for forecasting the behavior of dams equipped with automated monitoring systems						50
Kryazhych O.O, Kovalenko O.V. Some of the special features of the tritium migration						62
Kremenovska I.V. Waste management: accounting problem						74
<b>Beketova G.M.</b> Modeling of fire suppression in the ecological system of tress and shrubs						84
ABSTRACTS						91
INFORMATION A	ABOUT TH	E AUTH	ORS.			97