# Theory of Probability and Mathematical Statistics 

A Translation of

# TEOPIЯ <br> ЙМОВІРНОСТЕЙ ТА МАТЕМАТИЧНА СТАТИСТИКА 

ВИПУСК 912014

American Mathematical Society

# THEORY OF PROBABILITY AND MATHEMATICAL STATISTICS 

A translation of

TEOPIЯ ЙМОВIPHOСТЕЙ ТА МАТЕМАТИЧНА СТАТИСТИКА
Originally published in Ukrainian by TBiMC.
(C) TBiMC, 2014
(C) Київський університет, 2014

Editorial Board
V. S. Korolyuk (Editor-in-Chief)

Yu. V. Kozachenko (Deputy Editor-in-Chief)
Yu. S. Mishura (Deputy Editor-in-Chief)
L. M. Sakhno (Executive Secretary)
V. V. Anīsìmov I. Molchanov
O. Gushchin
O. O. Novikov
A. V. Ivanov
A. Ya. Olenko
M. V. Kartashov
E. Orsinger
A. G. Kukush
M. I. Portenko
M. M. Leonenko
D. S. Sil'vestrov
I. K. Matsak
O. V. Veretennikov
M. P. Moklyachuk
O. K. Zakusylo

SUBMISSION INFORMATION. All submissions to the journal should be sent to journal.tims@gmail.com. For more information see http://probability.univ.kiev.ua/tims/.

SUBSCRIPTION INFORMATION. The 2015 subscription is for Numbers 90 and 91 . Beginning in 2004, Theory of Probability and Mathematical Statistics is accessible from www.ams.org/journals/. Subscription prices for 2015 are as follows: for paper delivery, US $\$ 872$ list; US $\$ 697.60$ institutional member; for electronic delivery, US $\$ 828$ list, US $\$ 662.40$ institutional member. Upon request, subscribers to paper delivery of this journal are also entitled to receive electronic delivery. Subscription renewals are subject to late fees. See www.ams.org/journal-faq for more journal subscription information.

BACK NUMBER INFORMATION. For back issues see www. ams.org/backvols.
Subscriptions and orders should be addressed to American Mathematical Society, P.O. Box 845904, Boston, MA 02284-5904, USA. All orders must be accompanied by payment. Other correspondence should be addressed to 201 Charles Street, Providence, RI 02904-2294, USA.

COPYING AND REPRINTING. Individual readers of this publication, and nonprofit libraries acting for them, are permitted to make fair use of the material, such as to copy an article for use in teaching or research. Permission is granted to quote brief passages from this publication in reviews, provided the customary acknowledgment of the source is given.

Republication, systematic copying, or multiple reproduction of any material in this publication is permitted only under license from the American Mathematical Society. Permissions to reuse portions of AMS publication content are handled by Copyright Clearance Center's RightsLink ${ }^{\circledR}$ service. For more information, please visit: http : //www.ams.org/rightslink.

Translation rights and licensed reprint requests should be sent to reprint-permission@ams.org.
Excluded from these provisions is material in articles for which the author holds copyright. In such cases, requests for permission to use or reprint should be addressed directly to the author(s). (Copyright ownership is indicated in the notice in the lower right-hand corner of the first page of each article.)

Theory of Probability and Mathematical Statistics (ISSN 0094-9000) is published by the American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294, USA and is mailed from Providence, Rhode Island. Postmaster: Send address changes to Theory of Probability and Mathematical Statistics, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294, USA.
(C) 2015, American Mathematical Society. All rights reserved.

This journal is indexed in Mathematical Reviews and Zentralblatt MATH.
This journal is archived in Portico and in CLOCKSS.
Printed in the United States of America.
© The paper used in this journal is acid-free and falls within the guidelines
established to ensure permanence and durability.

# Theory of Probability and Mathematical Statistics 

Number 912015

A Translation of

## TEOPIЯ <br> ЙМОВІРНОСТЕЙ ТА МАТЕМАТИЧНА СТАТИСТИКА

ВИПУСК 912014

American Mathematical Society

# THEORY OF PROBABILITY AND MATHEMATICAL STATISTICS 

A translation of

TEOPIЯ ЙМОВIPHOСТЕЙ ТА МАТЕМАТИЧНА СТАТИСТИКА
Originally published in Ukrainian by TBiMC.
(C) TBiMC, 2014
(C) Київський університет, 2014

Editorial Board
V. S. Korolyuk (Editor-in-Chief)

Yu. V. Kozachenko (Deputy Editor-in-Chief)
Yu. S. Mishura (Deputy Editor-in-Chief)
L. M. Sakhno (Executive Secretary)
V. V. Anīsìmov I. Molchanov
O. Gushchin
O. O. Novikov
A. V. Ivanov
A. Ya. Olenko
M. V. Kartashov
E. Orsinger
A. G. Kukush
M. I. Portenko
M. M. Leonenko
D. S. Sil'vestrov
I. K. Matsak
O. V. Veretennikov
M. P. Moklyachuk
O. K. Zakusylo

SUBMISSION INFORMATION. All submissions to the journal should be sent to journal.tims@gmail.com. For more information see http://probability.univ.kiev.ua/tims/.

SUBSCRIPTION INFORMATION. The 2015 subscription is for Numbers 90 and 91 . Beginning in 2004, Theory of Probability and Mathematical Statistics is accessible from www.ams.org/journals/. Subscription prices for 2015 are as follows: for paper delivery, US $\$ 872$ list; US $\$ 697.60$ institutional member; for electronic delivery, US $\$ 828$ list, US $\$ 662.40$ institutional member. Upon request, subscribers to paper delivery of this journal are also entitled to receive electronic delivery. Subscription renewals are subject to late fees. See www.ams.org/journal-faq for more journal subscription information.

BACK NUMBER INFORMATION. For back issues see www. ams.org/backvols.
Subscriptions and orders should be addressed to American Mathematical Society, P.O. Box 845904, Boston, MA 02284-5904, USA. All orders must be accompanied by payment. Other correspondence should be addressed to 201 Charles Street, Providence, RI 02904-2294, USA.

COPYING AND REPRINTING. Individual readers of this publication, and nonprofit libraries acting for them, are permitted to make fair use of the material, such as to copy an article for use in teaching or research. Permission is granted to quote brief passages from this publication in reviews, provided the customary acknowledgment of the source is given.

Republication, systematic copying, or multiple reproduction of any material in this publication is permitted only under license from the American Mathematical Society. Permissions to reuse portions of AMS publication content are handled by Copyright Clearance Center's RightsLink ${ }^{\circledR}$ service. For more information, please visit: http : //www.ams.org/rightslink.

Translation rights and licensed reprint requests should be sent to reprint-permission@ams.org.
Excluded from these provisions is material in articles for which the author holds copyright. In such cases, requests for permission to use or reprint should be addressed directly to the author(s). (Copyright ownership is indicated in the notice in the lower right-hand corner of the first page of each article.)

Theory of Probability and Mathematical Statistics (ISSN 0094-9000) is published by the American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294, USA and is mailed from Providence, Rhode Island. Postmaster: Send address changes to Theory of Probability and Mathematical Statistics, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294, USA.
(C) 2015, American Mathematical Society. All rights reserved.

This journal is indexed in Mathematical Reviews and Zentralblatt MATH.
This journal is archived in Portico and in CLOCKSS.
Printed in the United States of America.
© The paper used in this journal is acid-free and falls within the guidelines
established to ensure permanence and durability.

## CONTENTS

T. Bodnar, S. Mazur, and Y. Okhrin, Distribution of the product of a singular Wishart matrix and a normal vector ..... 1
V. V. Golomozyĭ and M. V. Kartashov, Maximal coupling and stability of discrete non-homogeneous Markov chains ..... 17
O. V. Doronin, Adaptive estimation for a semiparametric model of mixture ..... 29
D. V. Zatula and Yu. V. Kozachenko, Lipschitz conditions for stochastic processes in the Banach spaces $\mathbb{F}_{\psi}(\Omega)$ of random variables ..... 43
O. V. Ivanov and K. K. Moskvichova, Asymptotic normality of the correlogram estimator of the covariance function of a random noise in the nonlinear regression model ..... 61
D. V. Koroliouk, Binary statistical experiments with persistent nonlinear regression ..... 71
A. V. Kulikov and N. O. Malykh, The concavity of the payoff function of a swing option in a binomial model ..... 81
S. V. Kuchuk-Iatsenko and Yu. S. Mishura, The weak convergence of Greek symbols for prices of European options: from discrete time to continuous ..... 93
V. I. Makogin, Asymptotic properties of integral functionals of fractional Brownian fields ..... 105
I. K. Matsak, A counting process in the max-scheme ..... 115
Yu. S. Mishura, O. Yu. Ragulina, and O. M. Stroev, Analytic properties of infinite-horizon survival probability in a risk model with additional funds ..... 131
M. V. Prats'ovytyĭ and I. O. Savchenko, The distributions of random incomplete sums of a series with positive terms satisfying the property of non-linear homogeneity ..... 145
M. V. Prats'ovytyĭ and Yu. V. Khvorostina, A random variable whose digits in the $\widetilde{L}$-representation have the Markovian dependence ..... 157
V. M. Radchenko, Integral equations with respect to a general stochastic measure ..... 169
T. D. Tymoshkevych, The Poincaré inequality and logarithmic Sobolev inequality for a spherically censored Gaussian measure ..... 181
V. B. Troshki, Restricted isometry property for matrices whose entries are random variables belonging to some Orlicz spaces $L_{U}(\Omega)$ ..... 193

## UKRAINIAN CONTENTS*

T. Bodnar, S. Mazur, Y. Okhrin
Distribution of the product of singular Wishart matrix and normal vec- tor ..... 1
В. В. Голомозий, М. В. Карташов
Максимальне склеювання та стійкість дискретних неоднорідних ланцюгів Маркова ..... 15
О. В. Доронін
Адаптивне оцінювання у семіпараметричній моделі суміші ..... 26
Д. В. Затула, Ю. В. Козаченко
Умови Ліпшиця для випадкових процесів з банахових просторів $\mathbb{F}_{\psi}(\Omega)$ випадкових величин ..... 38
О. В. Іванов, К. К. Москвичова
Асимптотична нормальність корелограмної оцінки коваріаційної функції випадкового шуму в нелінійній моделі регресії ..... 55
Д. В. Королюк
Бінарні статистичні експерименти з наполегливою нелінійною ре- гресією ..... 64
А. В. Куликов, Н. О. Мальх
Вогнутость функции выплаты свинг опциона в биномиальной моде- ли ..... 74
С. В. Кучук-Яценко, Ю. С. Мішура
Слабка збіжність "грецьких" символів для цін опціонів європейсь- кого типу: від дискретного часу до неперервного ..... 86
B.I. Макогін
Асимптотичні властивості інтегральних функціоналів від дробових броунівських полів ..... 97
I. К. Мацак
Про лічильний процес у схемі максимуму ..... 107
Ю. С. Мішура, О. Ю. Рагуліна, О. М. Строев
Аналітичні властивості ймовірності небанкрутства в моделі ризику з додатковими надходженнями коштів ..... 121
М. В. Працъовитий, І. О. Савченко
Розподіли випадкових неповних сум знакододатного ряду з неліній- ною властивістю однорідності ..... 133
М. В. Працъовитий, Ю. В. Хворостіна
Випадкова величина, символи $\widetilde{L}$-зображення якої мають марківську залежність ..... 143

[^0]
## B. М. Радченко <br> Інтегральні рівняння із загальною стохастичною мірою <br> 154 <br> Т. Д. Тимошкевич <br> Нерівність Пуанкаре та логарифмічна нерівність Соболєва для сферично цензурованої гауссової міри

## B. Б. Tрошкі

Обмежені властивості ізометрії для матриць, елементи яких є випадкові величини з певних просторів Орліча $L_{U}(\Omega)$


[^0]:    *The American Mathematical Society scheme for transliteration of Cyrillic may be found at the end of index issues of Mathematical Reviews.

