

# St. Petersburg Mathematical Journal

(Formerly Leningrad Mathematical Journal)

---

Volume 15 Number 3 2004

---

*A Translation of*

РОССИЙСКАЯ АКАДЕМИЯ НАУК

АЛГЕБРА

И

АНАЛИЗ

ТОМ 15 ВЫПУСК 3 2003



---

American Mathematical Society

Providence, Rhode Island USA

ISSN 1061-0022

# ST. PETERSBURG MATHEMATICAL JOURNAL

(Formerly Leningrad Mathematical Journal)

*A translation of the Russian bimonthly*

Алгебра и анализ

“Наука”, С.-Петербургское отделение, 2003 г.

## Editorial Board

A. B. Aleksandrov (Executive Secretary)	N. Yu. Netsvetaev N. K. Nikol'skiĭ (Managing Editor)
A. N. Andrianov (Managing Editor)	A. N. Parshin
V. M. Babich	M. A. Semenov-Tyan-Shanskii
M. Sh. Birman	A. O. Slisenko
V. S. Buslaev	A. A. Suslin
S. V. Buyalo	N. N. Ural'tseva
O. Ya. Viro	V. P. Khavin
S. V. Kislyakov (Managing Editor)	A. V. Yakovlev

**SUBSCRIPTION INFORMATION.** The 2004 subscription is for one volume of six issues. Beginning in 2004, *St. Petersburg Mathematical Journal* is accessible from [www.ams.org/journals/](http://www.ams.org/journals/). Subscription prices for Volume 15 are \$1546 list, \$1237 institutional member. Upon request, subscribers to paper delivery of this journal are also entitled to receive electronic delivery. For paper delivery, subscribers outside the United States and India must pay a postage surcharge of \$14; subscribers in India must pay a postage surcharge of \$23. Expedited delivery to destinations in North America \$21; elsewhere \$56. A late charge of 10% of the subscription price will be imposed upon orders received from nonmembers after January 1 of the subscription year.

**BACK NUMBER INFORMATION.** For back issues see [www.ams.org/bookstore](http://www.ams.org/bookstore).

Orders for subscriptions and publications of the American Mathematical Society should be addressed to the 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.** Material in this journal may be reproduced by any means for educational and scientific purposes without fee or permission with the exception of reproduction by services that collect fees for delivery of documents and provided that the customary acknowledgment of the source is given. This consent does not extend to other kinds of copying for general distribution, for advertising or promotional purposes, or for resale. Requests for permission for commercial use of material should be addressed to the Acquisitions Department, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294 USA. Requests can also be made by e-mail to [reprint-permission@ams.org](mailto:reprint-permission@ams.org).

**St. Petersburg Mathematical Journal** is published bimonthly by the American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294 USA. Periodicals postage paid at Providence, Rhode Island. Postmaster: Send address changes to St. Petersburg Mathematical Journal, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294 USA.

**Manuscripts** should be addressed to “Algebra i Analiz”, St. Petersburg Publishing Company of the Russian Academy of Sciences, Mendeleevskaya Liniya 1, St. Petersburg 199034, Russia. Submitting simultaneously a tex-file to the address [pmj@pdmi.ras.ru](mailto:pmj@pdmi.ras.ru) is highly appreciated.

© 2004 American Mathematical Society. All rights reserved.

This journal is indexed in *Mathematical Reviews* and *Zentralblatt MATH*.

Translation authorized by the All-Union Agency for Author's Rights, Moscow.

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.

10 9 8 7 6 5 4 3 2 1      09 08 07 06 05 04

*(Continued from back cover)*

*Малютин А. В., Нецветаев Н. Ю.* Порядок Деорнуа на группе кос  
и преобразования замкнутых кос . . . . . 170

**Легкое чтение для профессионала**

*Горин Е. А., Кукушкин Б. Н.* Интегралы, связанные с канторовой  
лестницей . . . . . 188

St. Petersburg Mathematical Journal  
(Formerly Leningrad Mathematical Journal)

Volume 15 Number 3 2004 (Third of 6 Numbers)

РОССИЙСКАЯ АКАДЕМИЯ НАУК  
АЛГЕБРА И АНАЛИЗ  
ТОМ 15 ВЫПУСК 3 2003

---

---

Expository Survey

- M. M. Malamud and S. M. Malamud, Spectral theory of operator measures in Hilbert space ..... 323

Research Papers

- D. E. Apushkinskaya, N. N. Ural'tseva, and H. Shahgholian, Lipschitz property of the free boundary in the parabolic obstacle problem ..... 375
- Fritz Gesztesy and Konstantin A. Makarov,  $SL_2(\mathbb{R})$ , exponential Herglotz representations, and spectral averaging ..... 393
- V. V. Kamotskiĭ, The incidence of the plane wave on an elastic wedge at a critical angle ..... 419
- A. V. Malyutin and N. Yu. Netsvetaev, Dehornoy's ordering on the braid group and braid moves ..... 437

Easy Reading for Professionals

- E. A. Gorin and B. N. Kukushkin, Integrals related to the Cantor function ..... 449

СОДЕРЖАНИЕ

Обзоры

- Маламуд М. М., Маламуд С. М. Спектральная теория операторных мер в гильбертовом пространстве ..... 1

Статьи

- Апушкинская Д. Е., Уральцева Н. Н., Шахголян Х. О липшицевости свободной границы в параболической задаче с препятствием ..... 78
- Гестези Ф., Макаров К. А.  $SL_2(\mathbb{R})$ , экспоненциальное представление функций Герглотца и спектральное усреднение. .... 104
- Камоцкий В. В. О падении плоской волны на упругий клин под критическим углом ..... 145

(Continued on inside back cover)

---

---

The American Mathematical Society scheme for transliteration of Cyrillic may be found at the end of index issues of *Mathematical Reviews*



1061-0022(2004)15:3;1-7