

Physics–Uspekhi

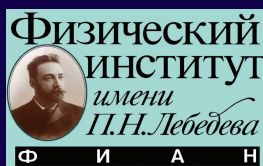
Advances in Physical Sciences



March 2023
Volume 66, Number 3

Translation of the Russian journal
Успехи физических наук, Uspekhi Fizicheskikh Nauk

March 2023, Volume 193, No. 3



PHYSICS- USPEKHI

ISSN 1063-7869 (Print)
ISSN 1468-4780 (Online)

CODEN: PHUSEY

Uspekhi Fizicheskikh Nauk

Uspekhi Fizicheskikh Nauk (UFN) (*Успехи физических наук (УФН)*, www.ufn.ru) publishes reviews of the current state of the most topical problems in physics and in associated fields under the general headings: reviews of topical problems, physics of our days, instruments and methods of investigation, methodological notes, from the history of physics, conferences and symposia, personalia, physics news on the Internet, and bibliography. The journal was founded in 1918 and is published monthly.

Editor-in-Chief Oleg V Rudenko

Managing Editor Maria S Aksent'eva

Advisory Board
Evgenii B Aleksandrov
Fazly I Ataulakhanov
Yurii V Gulyaev
Sergei P Denisov
Lev M Zelenyi
Olga A Kocharovskaya
Gennadii N Kulipanov
Aleksandr G Litvak
Gennadii A Mesyats
Rashid A Sunyaev
Alekssei R Khokhlov
Anatolii M Cherepashchuk

Editorial Board
Petr I Arseev
Vasily S Beskin
Aleksandr E Bondar'
Vadim V Brazhkin
Mikhail A Vasil'ev
Mikhail I Vysotskii
Igor M Dremine
Alekssei M Zheltikov
Genrikh R Ivanitskii
Dmitrii I Kazakov
Vitalii V Kveder
Nikolai N Kolachevskii
Zakhar'ii F Krasil'nik
Evgenii A Kuznetsov
Sergei A Nikitov
Vladimir F Obraztsov
Pavel N Pakhlov
Konstantin A Postnov
Vladimir I Ritus
Grigorii I Rubtsov
Mikhail V Sadovskii
Aleksandr M Sergeev
Boris M Smirnov
Robert A Suris
Dmitrii R Khokhlov
Maria V Chekhova
Evgenii M Churazov

Physics – Uspekhi

Physics–Uspekhi (Advances in Physical Sciences) is the English edition of the Russian monthly journal *Uspekhi Fizicheskikh Nauk*. Translation into English started with Russian volume 66. From 1958 until 1992 the journal was published by American Institute of Physics under the title *Soviet Physics–Uspekhi* and in 1993 under its current title *Physics – Uspekhi*. Since 1994 *Physics – Uspekhi* has been published jointly by Uspekhi Fizicheskikh Nauk and Turpion Ltd. From the beginning of 1996 *Physics – Uspekhi* is being translated, typeset and edited in Moscow by Uspekhi Fizicheskikh Nauk (UFN), from 2009 published by Uspekhi Fizicheskikh Nauk, Moscow.

Scientific Editors

MS Aksent'eva, VL Derbov, A M Semikhatov

English Language Editor

K Franchuk

Scientific and Staff Editors

MS Aksent'eva, EA Frimer, TB Larionova, TG Orekhova, TP Romanova, EV Zakharova

Desk Editors

AV Bobkov, NV Gribkova, MA Morgunova

Online services

The electronic version of the journal is available at <http://ufn.ru/en/> and <http://iopscience.org/phu>. All questions regarding online access should be sent to customer services at ufn@ufn.ru and customerservices@iopublishing.org

All rights reserved

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form, or by any means, electronic, mechanical, photographic, recording, or otherwise, without the prior permission of *Uspekhi Fizicheskikh Nauk*.

Editorial Office:

P N Lebedev Physical Institute, RAS,
Leninskii prospekt 53, 119991 Moscow, Russian Federation
Tel. (7-499) 132 62 65, (7-499) 190 34 52
Tel./Fax (7-499) 190 42 44.
E-mail: ufn@ufn.ru

Contents

233	Nonlocal (fractional-differential) model of cosmic ray transport in the interstellar medium V V Uchaikin, A D Erlykin, R T Sibatov	221
279	Optical nanoresonators V V Klimov	263
305	Universal structural properties of three-dimensional and two-dimensional melts B A Klumov	288
331	Galvanomagnetic and thermomagnetic phenomena in thin metal CoPt films Yu M Kuznetsov, M V Dorokhin, A V Zdoroveyshchev, A V Kudrin, P B Demina, D A Zdoroveyshchev	312
341	Yurii Nikolaevich Kul'chin (on his 70th birthday)	320
343	Rashid Alievich Sunyaev (on his 80th birthday)	322
340	Physics news on the Internet Yu N Eroshenko	325

◇ ◇ ◇

In the next issue

Laboratory modeling of jets from young stars using plasma focus facilities
V S Beskin, V I Krauz, S A Lamzin

Attosecond electromagnetic pulses: generation, measurement, and application.
Attosecond metrology and spectroscopy
M Yu Ryabikin, M Yu Emelin, V V Strelkov

Photon correlations and features of nonclassical optical fields in a squeezed vacuum state
R V Zakharov, O V Tikhonova

Theoretical and computational approaches to predicting the viscosity of liquids
N D Kondratyuk, V V Pisarev

In memory of Semen Solomonovich Gershtein

Physics news on the Internet