

Curriculum vitae

Oleg K. Vorov

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Present : Drake University, Department of Physics & Astronomy,
2507 University Avenue, Des Moines, Iowa 50311-4505
Postdoctoral Fellow

EDUCATION

Ph.D 1996 University of NSW, School of Physics, Sydney, Theoretical Physics.

1983-1987 Graduate course, Institute of Nuclear
Physics (Academy of Sciences of USSR,
Siberian Division, Novosibirsk), Theoretical and Mathematical Physics.

1978-1983 Diplom (M.Sc. eqv.) Novosibirsk State University
Institute of Nuclear Physics;
Theoretical Physics

HONORS & AWARDS

1996 Nomination for the Bragg Gold Medal for Excellence in Physics

1995 Nomination for the AIP Postgraduate Award in excellence

1994 Australian Institute of Physics Postgraduate Award in excellence

1993 Gordon Godfree Scholarship in Theoretical Physics,
School of Physics, University of New South Wales, Australia

1992 Overseas Postgraduate Research Scholarship,
School of Physics, University of New South Wales, Australia

1989 Nomination for the USSR State Prize in Sciences and
Technology (the most prestigious annual Government award)

1983 State Committee of the Ministry of Education of
USSR Award (competition of students' research
works), Russia

1983 First Prize in Theoretical Physics
(All-Union USSR competition of student's research works),
Novosibirsk, Russia.

REFEREE in: Physical Review Letters, Physical Review A

Selected papers

O.K. Vorov, P. Van Isacker, M.S. Hussein
and K. Bartschat, Nucleation and growth of vortices
in rotating Bose-Einstein condensate,
Phys. Rev. Lett. v.95, 230406 (2005).
<http://prola.aps.org/searchabstract/PRL/v95/i23/e230406>

O.K. Vorov, M.S. Hussein, and P. Van Isacker,
Rotating ground states of trapped
Bose atoms with arbitrary two-body interactions, Phys.Rev.Lett.
v.90, 200402 (2003);
Talk at UNESCO International Conference on Theoretical Physics TH2002.
<http://prola.aps.org/searchabstract/PRL/v90/i20/e200402>

H.Feshbach, M.S.Hussein, A.Kerman and O.K.Vorov,
Fundamental symmetry violation in nuclei,
Adv. Nucl. Phys., 25, 207 (2000).
<http://ebookopolis.com/ItemDisplay.asp?ItemID=18785>

V.V.Flambaum and O.K.Vorov,
Matrix elements between nuclear compound states
and dynamical enhancement of the weak interaction,
Phys. Rev. Lett. v.70, 4051 (1993).
http://prola.aps.org/abstract/PRL/v70/i26/p4051_1

RESEARCH APPOINTMENTS

From 2004: Postdoctoral Fellow, Drake University, Department of Physics
& Astronomy, 2507 University Avenue, Des Moines, IA 50311-4505, USA

2001- Researcher, GANIL (Grand Accelérateur National d'Ions Lourds),
2003 France.

1997- Postdoctoral Fellow, Nuclear Theory and Particle Phenomenology
2001 Group and Department of Mathematical Physics,
Instituto de Física, USP, Brazil

1995 - Postdoctoral Fellow, Tel Aviv University, School of Physics
1997 and Astronomy, Israel

1992- Postgraduate student at Theoretical Department,
1995 School of Physics, University of New South Wales, Australia

1983- Graduate student, Junior Research Fellow, Institute of Nuclear
1992 Physics (Siberian Division, Academy of Sciences, USSR, Novosibirsk)

Research experience in:

Nuclear Structure and Collective Motion in many-body systems, Boson Models

Superconducting correlations

Path Integral techniques in the Many-body Problem

Generalized Coherent States

Group Theory methods in Many-body Problem

Fundamental Symmetries in Many-body Systems

Structure of complex excited states in many-body systems

and Quantum Chaos manifestations, statistical theory of compound states

Parity and Time reversal violations in nuclei, Weak interaction in nuclei

Meson exchange & strong nuclear forces

Ensemble description of Disorder effects in condensed matter physics

Random matrix theory

Scattering theory

Inverse Scattering Theory

Integrable nonlinear systems and Lattices

Solitons and their applications

Quantized Inverse scattering theory (Bethe Ansatz)

Neutrino induced nuclear reactions, weak processes, muon capture

Exotic nuclei; Halo nuclei and parity violation in Exotic nuclei

Multiphonon Giant Resonances, Coulomb excitation

Relativistic heavy ion collisions

Bose condensation in interacting systems, Atomic traps

Electron-Atom scattering

TEACHING APPOINTMENTS

Drake University, Department of Physics & Astronomy,
part-time, Des Moines, IA, USA:

February 2006 - May 2006, Advanced Classical Physics
(scheduled)

February 2005 - May 2005, Advanced Classical Physics
(Classical Mechanics, Chaos, Relativity, Electromagnetism)

February 2004 - May 2004, Advanced Classical Physics
(Classical Mechanics, Chaos, Relativity, Electromagnetism)

Novosibirsk State University, Department of Theoretical
Physics, part-time:

1991- 1992 1 semester/year

1990- 1991 1 semester/year

1989- 1990 1 semester/year

1988- 1989 1 semester/year

1987- 1988 1 semester/year

Courses: Quantum mechanics, Statistical Physics,
Physics of continuous media

Research publications (see the attached list):

32 journal publications

19 published proceedings, abstracts, preprints & other publications
more than 40 conference presentations & seminars

Publication list

Book Chapters:

A1) H. Feshbach, M. S. Hussein, A. Kerman and O. K. Vorov,
Fundamental symmetry violation in nuclei,
Advances in Nuclear Physics, 25, 207 (2000).
<http://ebookopolis.com/ItemDisplay.asp?ItemID=18785>

Refereed journal publications / reverse chronological order

A2) 2005 O. K. Vorov, P. Van Isacker, M. S. Hussein and K. Bartschat,
Nucleation and growth of vortices in rotating Bose-Einstein condensate,
Physical Review Letters, Phys. Rev. Lett. v95, 230406 (2005).
<http://prola.aps.org/searchabstract/PRL/v95/i23/e230406>
<http://link.aps.org/doi/10.1103/PhysRevLett.95.230406>
URL: <http://link.aps.org/abstract/PRL/v95/e230406> DOI: 10.1103/PhysRevLett.95.230406

A3) 2005 K. Bartschat and O. K. Vorov, Channel-coupling, target-structure,
and second order effects in electron impact ionization of Ar(3p) and (3s),
Physical Review A, Phys. Rev. A 72, 022728 (2005).
<http://prola.aps.org/searchabstract/PRA/v72/i2/e022728>
<http://link.aps.org/doi/10.1103/PhysRevA.72.022728>
URL: <http://link.aps.org/abstract/PRA/v72/e022728> DOI: 10.1103/PhysRevA.72.022728

A4) 2005 M. Stevenson, G. J. Leighton, A. Crowe, K. Bartschat,
O.K. Vorov, and D.H. Madison, Experimental and theoretical (e,2e) studies
of argon (3p) ionization in asymmetric geometry,
Journal of Physics B: Atomic, Molecular and Optical Physics,
J. Phys. B: At. Mol. Phys. 38, 1189 (2005) . doi:10.1088/0953-4075/38/4/010
Online at stacks.iop.org/JPhysB/38/433

A5) 2005 O. K. Vorov and K. Bartschat,
Model sensitivity of theoretical results for ionization-excitation
of helium, **Journal of Physics B: Atomic, Molecular and Optical Physics**,
J. Phys. B: At. Mol. Phys. 38, 1189 (2005). doi:10.1088/0953-4075/38/8/009
Online at stacks.iop.org/JPhysB/38/1189

A6) 2003 O. K. Vorov, M. S. Hussein and P. Van Isacker,
Rotating ground states of trapped
Bose atoms with arbitrary two-body interactions,
Physical Review Letters, Phys. Rev. Lett., 90, 200402 (2003).
<http://prola.aps.org/searchabstract/PRL/v90/i20/e200402> xxx.arXiv.org/abs/cond-mat/0207339
<http://link.aps.org/doi/10.1103/PhysRevLett.90.200402>
URL: <http://link.aps.org/abstract/PRL/v90/e200402> DOI: 10.1103/PhysRevLett.90.200402

A7) 2002 M. S. Hussein, O. K. Vorov,
Condensed vortex ground states of rotating Bose-Einstein condensate
in harmonic atomic trap, **Annals of Physics (New York)**,

Ann. Phys. (N.Y.). 298, 248 (2002).
xxx.arXiv.org/abs/cond-mat/0112494

A8) 2002 M. S. Hussein, O. K. Vorov,
Bose-Einstein atoms in atomic traps with
predominantly attractive two-body interactions,
Physical Review A, Phys. Rev. A65, 053608 (2002)
<http://prola.aps.org/abstract/PRA/v65/i5/e053608> xxx.arXiv.org/abs/cond-mat/0108216
URL: <http://link.aps.org/abstract/PRA/v65/e053608> DOI: 10.1103/PhysRevA.65.053608

A9) 2002 M. S. Hussein, O. K. Vorov,
Ground states of a system of interacting particles in a parabolic trap,
Physica B: condensed matter, Physica B 312, 2002, 550.
xxx.arXiv.org/abs/cond-mat/0108300

A10) 2001 M.S.Hussein, O.K. Vorov,
Generalized yrast states of a Bose-Einstein condensate in harmonic trap
for a universality class of repulsive interactions,
Physical Review A, Phys. Rev. A65, 035603 (2002).
<http://prola.aps.org/abstract/PRA/v65/i3/e035603> xxx.arXiv.org/abs/cond-mat/0102505
URL: <http://link.aps.org/abstract/PRA/v65/e035603> DOI: 10.1103/PhysRevA.65.035603

A11) 2001 M. S. Hussein, A. R. F. de Toledo Piza, O. K. Vorov,
and A. K. Kerman,
Estimate of the Anapole moments of an exotic nucleus,
Nuclear Physics A, Nucl. Phys. A686, 163 (2001).
xxx.arXiv.org/abs/nucl-th/0112494

A12) 2000 M. S. Hussein, A. F. R. de Toledo Piza, O. K. Vorov,
SU(2,1) Model of Multiple Giant Dipole Resonance Coulomb Excitation,
Annals of Physics (New York), Ann. Phys. (N.Y.), 284, 167 (2000).
xxx.arXiv.org/abs/nucl-th/9908075

A13) 1999 M. S. Hussein, A. F. R. de Toledo Piza, O. K. Vorov
and A. Kerman, Enhancement of parity violating mixing in halo nuclei
and the problem of neutron weak parity nonconserving potential
constant, **Physical Review C**, Phys. Rev. C60, 064615 (1999).
<http://prola.aps.org/abstract/PRC/v60/i6/e064615> xxx.arXiv.org/abs/nucl-th/9908047
URL: <http://link.aps.org/abstract/PRC/v60/e064615> DOI: 10.1103/PhysRevC.60.064615

A14) 1999 M. S. Hussein, A. F. R. de Toledo Piza and
O. K. Vorov, Nonlinear Enhancement of the Multiphonon Coulomb Excitation
in Relativistic Heavy Ion Collisions,
Physical Review C, Rapid Communications, Phys. Rev. C59, R1242 (1999).
http://prola.aps.org/abstract/PRC/v59/i3/pR1242_1 xxx.arXiv.org/abs/nucl-th/9808073
URL: <http://link.aps.org/abstract/PRC/v59/pR1242> DOI: 10.1103/PhysRevC.59.R1242

A15) S. Yu. Kun, A. V. Vagov and O. K. Vorov,
Coherently rotating hyperdeformed quasimolecules
in $^{12}\text{C}+^{24}\text{Mg}$ scattering?
Physical Review C, Rapid Communications, Phys. Rev. C56, R585 (1999).
http://prola.aps.org/abstract/PRC/v59/i2/pR585_1
URL: <http://link.aps.org/abstract/PRC/v59/pR585> **DOI:** 10.1103/PhysRevC.59.R585

A16) N. Auerbach and O. K. Vorov,
Renormalization of the one-body off-diagonal Coulomb field in
nuclei, **Physics Letters B**, Phys. Lett. B414, 1 (1997).
xxx.arXiv.org/abs/nucl-th/9709042

A17) A. V. Vagov and O. K. Vorov.
Gaussian ensemble of tridiagonal
random matrices,
Physics Letters A, Phys. Lett. A232, 91 (1997).

A18) N. Auerbach, Nguyen Van Giai and O. K. Vorov,
Neutrino-nucleus reactions on ^{12}C and ^{16}O ,
Physical Review C, Phys. Rev. C56, R2368 (1997).
http://prola.aps.org/abstract/PRC/v56/i5/pR2368_1 xxx.arXiv.org/abs/nucl-th/9705003
URL: <http://link.aps.org/abstract/PRC/v56/pR2368> **DOI:** 10.1103/PhysRevC.56.R2368

A19) N. Auerbach and O. K. Vorov,
Microscopic calculations of Parity Nonconserving Spreading Widths
in Nuclei, **Physics Letters B**, Phys. Lett. B391, 249 (1996).

A20) O. K. Vorov, N. Auerbach, V. V. Flambaum,
Structure of low-energy collective 0^{-} -states in doubly
magic nuclei and matrix elements of the P-odd and P- and T-odd
weak interaction,
Physics Letters B, Phys. Lett. B385, 17 (1996).
xxx.arXiv.org/abs/nucl-th/9603046

A21) O. K. Vorov
Limits of Time-Reversal Violating Interaction
from Compound Nuclear Experiments,
Physics Letters B, Phys. Lett. B368, 191 (1996).
xxx.arXiv.org/abs/nucl-th/9511035

A22) O. K. Vorov and A. V. Vagov.
Problem of a quantum particle in a random potential
on a line revisited,
Physics Letters A, Phys. Lett. A205, 301 (1995).

A23) V. V. Flambaum and O. K. Vorov
Effects of T- and P-odd weak nucleon interaction in nuclei:
renormalizations due to residual strong interaction,
matrix elements between compound states and their correlations
with P-violating matrix elements,
Physical Review C, Phys.Rev. C51, 2914 (1995).
[Ehttp://prola.aps.org/abstract/PRC/v51/i6/p2914_1](http://prola.aps.org/abstract/PRC/v51/i6/p2914_1) xxx.arXiv.org/abs/nucl-th/9412022
[URL: http://link.aps.org/abstract/PRC/v51/p2914](http://link.aps.org/abstract/PRC/v51/p2914) [DOI: 10.1103/PhysRevC.51.2914](https://doi.org/10.1103/PhysRevC.51.2914)

A24) V. V. Flambaum and O. K. Vorov.
Renormalization of the P- and T-odd nuclear potentials
by the strong interaction and enhancement of P-odd
effective field, **Physical Review C**, Phys.Rev. C49, 1827 (1994).
http://prola.aps.org/abstract/PRC/v49/i4/p1827_1 xxx.arXiv.org/abs/nucl-th/9706016
[URL: http://link.aps.org/abstract/PRC/v49/p1827](http://link.aps.org/abstract/PRC/v49/p1827) [DOI: 10.1103/PhysRevC.49.1827](https://doi.org/10.1103/PhysRevC.49.1827)

A25) V. V. Flambaum and O. K. Vorov.
Induced Parity Nonconserving Interaction
and Enhancement of Two-Nucleon Parity
Nonconserving Forces.
Physical Review C, Phys. Rev. C51, 1521 (1995).
http://prola.aps.org/abstract/PRC/v51/i3/p1521_1 xxx.arXiv.org/abs/nucl-th/9412018
[URL: http://link.aps.org/abstract/PRC/v51/p1521](http://link.aps.org/abstract/PRC/v51/p1521) [DOI: 10.1103/PhysRevC.51.1521](https://doi.org/10.1103/PhysRevC.51.1521)

A26) V. V. Flambaum and O. K. Vorov.
Matrix elements between nuclear compound states
and dynamical enhancement of the weak interaction,
Physical Review Letters, Phys. Rev. Lett. v.70, 4051 (1993).
http://prola.aps.org/abstract/PRL/v70/i26/p4051_1 xxx.arXiv.org/abs/nucl-th/9706014
[URL: http://link.aps.org/abstract/PRL/v70/p4051](http://link.aps.org/abstract/PRL/v70/p4051) [DOI: 10.1103/PhysRevLett.70.4051](https://doi.org/10.1103/PhysRevLett.70.4051)

A27) O. K. Vorov.
Contemporary methods of constructing the effective
dynamics of large-amplitude collective excitations in heavy
nuclei. I. A simple model,
Yad. Fiz.. 53, p.922, (1991).
(**Sovjet Journal of Nuclear Physics**), reprinted by **American Institute of Physics**,
Sov. J. Nucl. Phys. Yad. Fiz.. 53, p.922, (1991).

A28) O. K. Vorov
On the effective "chiral dynamics" in the problem
of large-amplitude collective motion in a finite
Fermi-system
Yad. Fys. 49, p. 1207, (1989).

(**Sovjet Journal of Nuclear Physics**) , reprinted by **American Institute of Physics**,
Sov. J. Nucl. Phys. 49(4), p. 749, (1989).

A29) O. K. Vorov.

Berry's phase and quantization of the collective
modes in many-body system,
Yad. Fiz. 48, p. 991, (1988).

(**Sovjet Journal of Nuclear Physics**) , reprinted by **American Institute of Physics**,
Sov. J. Nucl. Phys. 48(4), p. 631, (1988) .

A30) J. Adam, M. Honusek, A. Shpalek, D. N. Doynikov, A.D.
Efimov, M. F. Kudojarov, I. Kh. Lemberg, A. A. Pasternak,
O.K.Vorov and U.Y.Zhovliev
Lifetimes and structure of ⁷⁶Se excited states,
Zeitschrift fuer Physik, Z. Phys. A 332 (1989) p. 143.

A31) O. K. Vorov and V. G. Zelevinsky.
Quartic anharmonicity and angular momentum effects
in even-even spherical nuclei,
Nuclear Physics A, Nucl. Phys. A439 (1985) 207 .

A32) O. K. Vorov and V. G. Zelevinsky.
On phenomenological description of quadrupole
excitations in spherical nuclei: effects of quartic anharmonicity,
Yad. Fiz. 37, (1983) p.1392 (1983), (**Sovjet Journal of Nuclear Physics**) ,
reprinted by **American Institute of Physics**, Sov. J. Nucl. Phys. 37(6), p.830 (1983).

Papers submitted / in preparation

A' 33) 2005 O. K. Vorov, P. Van Isacker and K. Bartschat,

Rotating Bose-Einstein condensates at the phase transition point, subm. to **Nature** (London), in preparation.

A' 34) 2005 O. K. Vorov, P. Van Isacker and K. Bartschat, Instabilities in the Ginzburg-Landau - Gross-Pitaevskii system, to be subm. **Phys. Rev. Lett.**, in preparation.

A' 35) 2005 O. K. Vorov, M. S. Hussein and P. Van Isacker, and K. Bartschat, Correlation functions and dimensionality effects in the weakly interacting trapped bosonic atoms, to be submitted to **Phys. Rev. A** (in preparation).

A' 36) 2005 O. K. Vorov, M. S. Hussein and P. Van Isacker, and N. Van Giai, Yrast states of attracting spin-aligned Fermi system in three-dimensional harmonic trap, to be submitted to **Phys. Rev. A** (in preparation).

A' 37) 2005 M. S. Hussein and O. K. Vorov. Nuclear anapole moments in random phase approximation, to be submitted to **Phys. Rev. C** (in preparation).

A' 38) 2005 O.K. Vorov and A.V. Vagov, Analytical solution to the Hatano-Nelson problem, to be subm. to **Phys. Rev. Lett.** (in preparation).

A' 39) 2005 C. Martin, P. Schuck, and O. K. Vorov, Random Phase approximation and its extension for the O(2) anharmonic oscillator: comparison with exact numerical calculations, submitted to **Eur. J. Phys. A**.

A' 40) 2005 O. K. Vorov, M. S. Hussein, M.P. Pato, K-number mixing tests of the Bohr's hypothesis: nuclear Foucault pendulum, to be subm. to **Phys. Rev. Lett.** (in preparation).

Published Conference Proceedings, Contributions to Books, quoted Preprints

- B1) 1985 O.K.Vorov and V.G.Zelevinsky.
Low-lying levels in spherical nuclei, boson models and new type of symmetry, in Proceedings of the International Seminar on "Group Theoretical Methods in Physics", Yurmala, 1985, VNU, Sc.Press, Utrecht, 1986.
- B2) 1987 O.K.Vorov and V.G.Zelevinsky
Quadrupole vibrations in nuclei - "renaissance" of nuclear spectroscopy, Proceedings of the XXI Winter School, Leningrad Institute of Nuclear Physics, Leningrad, 1987,
p.195
- B3) O.K.Vorov and V.G.Zelevinsky.
Quadrupole collective motion: "old" and "new" approaches to the description of the experimental data,
Izv. Acad. Nauk, Ser. fis., 1 (1987) p.66
- B4) 1988 O.K.Vorov and V.G.Zelevinsky
Phonons in soft nuclei.
Proceedings of the International Symposium On Modern Developments in Nuclear Physics (June 27 - July 1, 1987), O.P.Sushkov ed., World Scientific, Singapore, 1988, p.281
- B5) 1986 O.K.Vorov. Collective quadrupole excitations of spherical nuclei in the framework of nonlinear vibrations model.
I. The theory
Preprint of the Institute of Nuclear Physics (Novosibirsk), INP-86-86
- B6) 1986 O.K.Vorov. Collective quadrupole excitations of spherical nuclei in the framework of nonlinear vibrations model
II. Comparison with the experimental data
Preprint INP-86-170, Novosibirsk
- B7) 1987 O.K.Vorov.
On the microscopic derivation of the effective Hamiltonian of nonlinear vibrations
Program and abstracts of the XXXVII Conference on the Nuclear Spectroscopy and Nuclear Structure, Leningrad, Nauka, 1987, p.114
- B8) 1987 O.K.Vorov. On the soft vibrator properties in the low-lying states of light even-even nuclei.
Program and abstracts of the XXXVII Conference on the Nuclear Spectroscopy and Nuclear Structure Leningrad, Nauka, 1987, p.135.

B9) 1987 O.K.Vorov. Transition probabilities in the even-even nuclei.

Program package for the calculation of observable quantities of the collective spectra in the framework of the anharmonic vibrations model
Program and abstracts of the XXXVII Conference on the Nuclear Spectroscopy and Nuclear Structure
Leningrad, Nauka, 1987, p.156

B10) 1989 O.K.Vorov

On the role of "quantum adiabatic holonomy" in the description of the collective excitations of many-body systems in the functional integral approach
Proceedings of the International Seminar on Geometrical Aspects of Quantum Theory, Dubna, USSR, September 1988, World Scientific, Singapore, 1989, p. 214

B11) 1994 O.K.Vorov

Fundamental symmetry violations and manifestations of quantum chaos in many body systems,
in Recent Progress in Many-Body Theories, v.4, 1995, p.309.

B12) 1994 O.K.Vorov

Spatial parity and time reversal invariance violations and quantum chaos manifestations in atomic nuclei
Abstracts of The 15th AINSE Nuclear and Particle Physics Conference, 6th APPC Congress, Brisbane. p. 10.

B13) 1999 M. S. Hussein, A. F. R. de Toledo Piza and O. K.Vorov, Giant Resonances in Coulomb Excitations of Relativistic Ions, in: Collective Phenomena in Bose and Fermi Systems, World Scientific, 1999, eds. C. Bertulani and M.S. Hussein.

xxx.arXiv.org/abs/nucl-th/9908051

B14) 2001 O. K.Vorov, M. S. Hussein,
Multiplicity of pions from a heated interacting gas,
published in the Proceedings of the International Workshop on Relativistic Aspects of Nuclear Physics (Oct.2000), Wrlld.Sci.

B15) O.K. Vorov, M.S. Hussein and P. Van Isacker,
"24th International Colloquium on Group Theoretical Methods in Physics, Paris, 15-20 July, 2002, GROUP 24", Physical and Mathematical Aspects of Symmetries Institute of Physics Conference Series, v. 173, p.609,

2003.

B16) Universal behavior of the rotating ground states of trapped Bose atoms with manipulated interaction strength, in the proceedings of TH2002 UNESCO International Conference on Theoretical Physics.

B17) O.K. Vorov, P. Van Isacker, M.S.Hussein and S. Yu. Kun, Multi-vortex phase transitions in rotating Bose-Einstein condensates, Proceedings of Workshop on Nuclei and Mesoscopic Physics, AIP Conference Proceedings 777, 72 (2005), edited by V.G. Zelevinsky.

B18) K. Bartschat and O. Vorov, Bulletin of the American Physical Society, v.50, (No. 3), p.18 (2005); DAMOP meeting, May, 2005, Channel-coupling and second-order effects in electron-impact excitation of Ar(3p) and Ar(3s).

B19) O.K. Vorov, P. Van Isacker, M.S.Hussein and K. Bartschat, Bulletin of the American Physical Society, v.50, (No. 3), p.101 (2005); DAMOP meeting, May, 2005, Nucleation and growth of vortical Wigner molecules in rotating Bose-Einstein condensate.

Invited talks, Conference presentations & Seminars

1983

C1) O.K.Vorov. talk on the Strongly anharmonic vibrator at the All-USSR Conference/Competition of Student Research Works, April 1983 – First Prize in Theoretical Physics.

1984

C2) O.K.Vorov. Talk at the All-USSR Conference of the young scientists (physics), on the Nonlinear effects in the collective excitations in spherical nuclei, Kiev, Ukraine, Soviet Union, Oct. 1984.

1986

C3) O.K.Vorov. Nonlinear effects in the collective excitations in the even-even nuclei, Seminar at the Leningrad Institute of Nuclear Physics (LIYaF), Sankt-Peterbourg (Leningrad), Russia, March 1986.

C4) O.K.Vorov. Quadrupole excitations in spherical nuclei, Seminar at the Cyclotron Laboratory of the Ioffe Fiziko-Tekhnicheskij Institute (Ioffe Institute of Physics and Technology), Leningrad/Sankt-Peterbourg, Russia, 1986.

C5) O.K.Vorov. Nonlinear effects in the collective excitations in the even-even nuclei, Seminar at the Department of Nuclear Physics, Leningrad State University, Sankt-Petersbourgh, Russia, 1986.

C6) O.K.Vorov, talk at the the XXXVI Conference on the Nuclear Spectroscopy and Nuclear Structure, Kharkov Ukraine, USSR, April 1986.

1987

C7) O.K.Vorov. All-Union Conference on Nuclear Physics at Moscow State University, Moscow, Russia, January 1987.

C8) O.K.Vorov. On the microscopic derivation of the effective Hamiltonian of nonlinear vibrations, talk given at the XXXVII Conference on the Nuclear Spectroscopy and Nuclear Structure, Yurmala (Riega), Estonia, USSR, April 1987.

C9) O.K.Vorov, Seminar at the Kurchatov Institute of Atomic Energy (IAE), Moscow, Russia, 1987.

1988-1989

C10) O.K.Vorov. Quadrupole collective excitations in the transitional even-even nuclei, Invited Plenary talk at the Symposium on the Nuclear Physics at the Ioffe Institute of Physics and Technology, Sankt-Petersbourgh, Russia.

C11) O.K.Vorov Talk at the conference at Dubna , in memory of Pyatov.

C12) O.K.Vorov, On the role of "quantum adiabatic holonomy" in the description of the collective excitations of many-body systems in the functional integral approach, talk at the International Seminar on Geometrical Aspects of Quantum Theory, Dubna, USSR, September 1988.

1989

C13) O.K.Vorov.
Path integral approach to the problem of derivation of the effective Hamiltonian of large amplitude collective motion. Talk given at XIX International School on Nuclear Structure and Neutron Physics, Varna, Bulgaria, September 27 - October 5, 1989.

C14) O.K.Vorov. Functional integral methods for the effective dynamics of the low-energy collective motion, seminar at the Theoretical Department of the Budker Institute of Nuclear Physics, Novosibirsk, Russia, December 1989.

C15) O.K.Vorov. Fundamental symmetry violation effects in neutron-nucleus scattering, talk presented at the seminar /AIP Postgraduate Award for excellence in physics, Physics Department, University of New South Wales, Sydney, Australia, 1994.

C16). O.K.Vorov,

Limits of Time-Reversal Violating Interaction
from Compound Nuclear Experiments,
Talk given at the ECT* workshop 'Parity and Time Reversal Violation
in Compound Nuclear States and Related Topics',
at Trento, Italy, October 1995.

C17) O.K.Vorov,
Exactly solvable models of Chaos and Disorder,
Invited Talk given at the workshop
"Chaotic Dynamics and Quantum Many-Body Systems",
ECT* at Trento, Italy, February, 1997.

C18) O.K.Vorov,
Giant Resonances in Coulomb Excitations of Relativistic Ions,
Invited talk given at the International Conference on
"Collective Excitations in Fermi and
Bose Systems", September 14--17, 1998, Serra Negra, Brazil.

C19) O.K.Vorov,
Giant Resonances in Coulomb Excitations of Relativistic Ions,
talk given at the XI Brazilian National Workshop on Nuclear Physics, Brazil, 1998.

C20) M.S. Hussein and O.K.Vorov, Anapole moments of spherical nuclei in RPA
approximation, poster presentation at the XI Brazilian National Workshop on
Nuclear Physics, Brazil, 1998.

C21) O.K.Vorov, "Relativistic Ion Collisions and Nuclear Collective
Modes", Invited talk given at the XI School on Nuclear Physics, Sao Paulo,
Brazil, 26 Jan-04Feb, 1999.

C22) O.K.Vorov, "SU(2,1) dynamics of Giant Dipole Resonance Coulomb
excitation: Two-phonon enhancement factors", talk given at the XII Brazilian
National Workshop on Nuclear Physics, Brazil, 1999.

C23) O.K.Vorov, Enhancement of parity violating mixing in halo nuclei and the
problem of neutron weak parity nonconserving potential constant, talk given at
the XII Brazilian National Workshop on Nuclear Physics, Brazil, 1999.

C24) O.K.Vorov, "Group theoretical aspects of Coulomb excitation
via relativistic heavy ion collision", talk given at the
Institute for Nuclear Theory, Seattle, Washington, USA,
October 1999.

C25) O.K.Vorov, "SU(2,1) dynamics of multiple giant resonance
in Coulomb excitation", poster presentation at the
"Tenth International Conference on Recent Progress in Many-Body
Theories", Seattle, September 10 - 15, 1999, Washington, USA.

- C26) O.K.Vorov, "Excitation of multiphonon Giant resonances in RHIC: enhancement factor puzzle", talk given at the INT Summer School on Nuclear Physics, Santa Cruz, California, USA, July 2000.
- C27) O.K.Vorov, talk on the Group-theoretical approach to the nonlinear effects in multiple Giant resonance excitations via Relativistic Heavy Ion Collisions at the Symposium of the Department of Mathematical Physics, USP, Sao Paulo, Brazil, 2000.
- C28) O.K.Vorov, Algebraic methods in multiple Giant resonance excitations in Relativistic Heavy Ion Collisions ", talk given at the XIII Brazilian National Workshop on Nuclear Physics, Sao Paulo, Brazil, 2000.
- C29) O.K.Vorov, Rotating Bose-Einstein condensates, talk given at the XIII Brazilian National Workshop on Nuclear Physics, Sao Paulo, Brazil, 2000.
- C30) O.K.Vorov, Multiplicity of pions from a heated interacting gas, poster presentation at the "International Workshop on Relativistic Aspects of Nuclear Physics", Brazil, October.2000.
- C31) O.K.Vorov, Yrast states of the Bose-Einstein condensates in 2D traps, presented at the XII School on Nuclear Physics, Sao Paulo, Brazil, February 2001.
- C32) O.K.Vorov, "Rotating Bose-Einstein condensates in atomic traps", Seminar at the Department of Nuclear Physics, Sao Paulo, Brazil, June 2001.
- C33) O.K.Vorov, Ground states of a system of interacting particles in a parabolic trap, presented at the International Conference on Strongly Correlated Electron Systems, SCES-2001, Ann Arbor, Michigan, USA, July 2001.
- C34) O.K.Vorov, talk on rotating interacting Bose-Einstein condensates, at the XIV Brazilian National Workshop on Nuclear Physics, Sao Paulo, Brazil, August-September 2001.
- C35) O.K.Vorov, Bose-Einstein condensation of trapped atoms from viewpoint of nuclear physics, Seminar at the Grand Accelérateur National d'Ions Lourds (GANIL), Caen, France, March 2002.
- C36) Group-theoretical and algebraic aspects of Bose-Einstein condensation of interacting particles in traps, talk given at the XXIV International Conference on Group Theoretical Methods in Physics, (Paris, France, July 2002).
- C37) O.K.Vorov and A.V. Vagov, Exact solution to the random Hamiltonian

problems and the symmetries of exactly integrable systems, poster and short talk, presented at the XXIV International Conference on Group Theoretical Methods in Physics, (Paris, France, July 2002).

C38) Universal behavior of the rotating ground states of trapped Bose atoms with manipulated interaction strength, talk given at the International Conference on Theoretical Physics (TH2002 UNESCO, Paris, France, July 2002).

B39) O.K.Vorov and A.V. Vagov, Solution to the quantum chaos problems from the symmetries of integrable systems, poster presentation at the TH2002 UNESCO International Conference on Theoretical Physics.

C40) Rotating ground states of trapped Bose atoms with arbitrary interactions, seminar at the Institute de Physique Nucleaire, Univ. Paris Sud, Orsay, France, March 2003.

C41) Fractional Quantum Hall states and interacting bosons in harmonic traps, seminar at the Institute for Atomic and Molecular Physics (AMOLF/FOM), Amsterdam, Netherlands, June 2003.

C42) Rotating Bose-Einstein condensates in atomic traps: Some exact results, seminar at the Institute of Theoretical Physics, University of Utrecht, Netherlands, June 2003.

C43) Rotation of weakly interacting BEC in atomic traps, seminar at the University of Delaware, Newark, USA, October 2003.

C44) Workshop on Nuclei and Mesoscopic Physics, National Superconducting Cyclotron Laboratory, Michigan State University, East Lansing, Michigan, USA, October 23-26, 2004.

C45) K. Bartschat and O. Vorov, Channel-coupling and second-order effects in electron-impact excitation of Ar(3p) and Ar(3s), poster presentation at the DAMOP meeting of the American Physical Society, May, 2005.

C46) Talk at the American Physical Society Meeting, Division of Atomic & Molecular Physics, May 2005. Nucleation and growth of vortical Wigner molecules in rotating Bose-Einstein condensate.