

ACADEMICIAN

LUSEGEN ARMENAK BUGAEV



CURRICULUM VITAE

Head of Department of Theoretical and Computational Physics, Physical Faculty of Southern Federal University (former Rostov State University), Professor, Doctor of Science.
Foreign member of the National Academy of Sciences of the Republic of Armenia.

Address: Physical Faculty of Southern Federal University, Zorge str., 5, Rostov-on-Don, 344090, Russia

Office Telephone: +7 863 297 53 36 and +7 863 223 72 75

Fax: +7 863 297 51 20

E-mail: bugaev@sfedu.ru

Home address: Teatralnii Avenue, 40, apt. 69, Rostov-on-Don, 344019, Russia

Personal History:

Born - September 22, 1952, Rostov-on-Don, SU

Married, 1 Child

Education:

Scientific Title: Professor of Theoretical and Computational Physics, Ministry of Education, Moscow, Russia, 1999

Doctor of Science (Condensed Matter Physics) – St. Petersburg State University, St. Petersburg, Russia, 1992

Ph.D (Condensed Matter Physics) – Rostov State University, Rostov-on-Don, SU, 1982

A.B. (Physics, X-ray Spectroscopy) – Rostov University, Rostov-on-Don, SU, 1975

Professional History:

Head of Department of Theoretical and Computational Physics, Physical Faculty of Southern Federal University (former Rostov State University), 2007 - present

Professor at Physical Faculty, Rostov State University, 1993- 2007

Senior Research Scientist at Institute of Physics, Rostov State University, 1983-1993

Junior Research Scientist at Institute of Physics, Rostov State University, 1975-1983

Research Interests and Experience

X-Ray Absorption (XAS) Spectroscopy. Photoelectron Spectroscopy.

Condensed Matter Physics. Computational Physics.

Professional Activities, Awards

Member of Specialized Council (Condensed Matter Physics) for considering theses on degree - Doctor of Science, 1994 – present.

Member of International XAS-Society.

Grant of the program “Russian Universities-Fundamental Researches”, 1998-2000

Grant of the Russian Foundation for Basic Research (RFBR), 1996-7 and 2001-2004

Grant of the Russian Ministry of Education and Science “Development of High School Scientific Potential” 2006-2010

Grant of the University P&M Curie, Paris 7, 36MCF0227, 1997

University Activities

Member of Physical Faculty Council at Rostov State University, 1994 – present

Courses Taught

Quantum theory, Computational Methods in Condensed Matter Physics, Methods of materials structure determination, Nonrelativistic Scattering Theory.

Ph.D Thesis Supervision

1. Levin I.G., 1988, “Multiple-scattering effects and the problem of electron potential choice in XAFS-theory of solids”.
2. Alekseenko I.B., 1997, “Ab initio calculation of crystals EXAFS and its role in the determination of atoms displacements in ABO_3 compounds”.
3. Sokolenko A.P., 2001, “Determination of local atomic structure parameters in crystalline minerals, consisting of low-Z atoms, using their XANES spectra”.
4. Zhuchkov K.N., 2002, “Determination of small displacements of atoms from the ideal positions in perovskite type crystals by EXAFS”.
5. Rusakova E.B., 2004, “Coordination environment of Ti in glasses and radiation-damaged compounds determined via the Fourier-transform analysis of Ti K-XANES”.
6. Latokha Ya.V., 2005, “Investigation of metal-atoms coordination in zeolites and silicate glasses by the Fourier-transform K-edge XANES analysis”.
7. Avakyan L.A., 2009, “Fourier-analysis of energy restricted X-ray absorption spectra in local atomic structure determination for amorphous and disordered compounds”.

Total number of publications – 121; among them, selected publications are:

1. L.A. Bugaev, J.A. van Bokhoven, V.V. Khrapko, L.A. Avakyan, J.V. Latokha
“Effect of Aluminum on the Local Structure of Silicon in Zeolites as Studied by

Si K edge XANES: Spectra Simulation with a non-MT Atomic Background”
J. Phys. Chem. B, 2009

2. Л. А. Бугаев, Л. А. Авакян, М. С. Махова, Е. В. Дмитриенко, И. Б. Алексеенко
“Разрешение межатомных расстояний с помощью Фурье-анализа рентгеновских спектров поглощения малой энергетической протяженности”
Оптика и Спектроскопия, 2008, т.105, № 6, с.961-968.
3. L.A. Bugaev, J.A. van Bokhoven, Ya.V. Latokha, L.A. Avakyan
“Non-MT Determination of X-ray Absorption Cross-Section’s Factorized Atomic Part in the Near-Edge Region. Application to Si K-edge XANES Analysis in Beta-Zeolites.”
American Institute of Physics, 2007, v. CP-882, p.117-119.
4. Bugaev L.A., van Bokhoven J.A., Sokolenko A.P., Latokha Ya.V., Avakyan L.A.
“Local structure of aluminum in zeolite mordenite as affected by temperature.”
J. Phys. Chem. B, 2005, v.109, p.10771-10778.
5. Bugaev L.A., Farges F., Rusakova E.B., Sokolenko A.P., Latokha Ya.V., Avakyan L.A.
“Fe Coordination Environment in Fe(II)- and Fe(III)-Silicate Glasses via the Fourier-transform analysis of Fe K-XANES.”
Physica Scripta, 2005, v.115, p.215-217.
6. Bugaev L.A., Farges F., Rusakova E.B., Sokolenko A.P., Latokha Ya.V., Avakyan L.A.
“The Fourier-transform analysis of Ti K-XANES in metamicts and glasses.”
Physica Scripta, 2005, v.115, p.168-171.
7. Bugaev L.A., Sokolenko A.P., Dmitrienko H.V., Flank A.-M.
“Fourier filtration of XANES as a source of quantitative information of distances and coordination numbers in crystalline minerals and amorphous compounds.”
Phys. Rev. B, 2002, v.65, n.2, p.024105-024112.
8. Bugaev L.A., Sokolenko A.P., Dmitrienko H.V., Grishkan V.Yu., Flank A.-M.
“Determination of distances and coordination numbers in amorphous compounds by XANES. Application to diopside glass.”
Phys. Chem. Glasses, 2002, v.43C, p.35-37.
9. Bugaev L.A., Shuvaeva V.A., Zhuchkov K.N., Rusakova E.B. and Vedrinskii R.V.
“The temperature dependence for the 3-rd shell’s Fourier-peak of Nb-EXAFS in KNbO₃ as additional source of information on the local atomic structure.”
Journ. Synchrotron Rad., 2001, v.8, p.308-310.
10. Bugaev L.A., Ildefonse Ph, Flank A.-M., Sokolenko A.P. and Dmitrienko H.V.
“Determination of interatomic distances and coordination numbers by XANES in crystalline minerals with distorted local structure.”
Journ. Phys.: Cond. Matter, 2000, v.12, p.1119-1131.
11. Bugaev L.A., Shuvaeva V.A., Zhuchkov K.N., Rusakova E.B., Alekseenko I.B.
“The regular approach for identifying the atomic displacements in ABO₃ crystals and its application to high-temperature phases of KNbO₃.”
Journ. Synchrotron Rad., 1999, v.6, p.299-301.
12. Bugaev L.A., Ildefonse Ph, Flank A.-M., Sokolenko A.P. and Dmitrienko H.V.
“Aluminum K-XANES spectra in minerals as a source of information on their local atomic structure.”

- Journ. Phys.: Cond. Matter, 1998, v. 10, p.5463-5473.
13. Bugaev L.A., Shuvaeva V.A., Alekseenko I.B., Zhuckov K.N., Husson E.,
“Identification of atoms displacement directions in ABO_3 compounds by EXAFS”
Journ. de Phys., 1997, v.IV, N 7, p.C2 179-181.
 14. Vedrinskii R.V., Taranukhina A.I., Bugaev L.A., et.al.,
“Bond length determination for transition atoms by shallow level EELFS.”
Surface Science, 1996, v.352-354, p.32-35.
 15. Vedrinskii R., Taranukhina A., Novakovich A., Bugaev L.,
“The origin of the EXAFS-like structure in secondary electron spectra above
M23 Auger lines of 3d metals.”
J. Phys.: Cond. Matter, 1995, v.7, p.L181-L186.
 16. Vedrinskii R.V., Taranukhina A.I., Bugaev L.A., et.al.,
“The effect of 3d-electron excitation on EELFS and EXAFS above M23 edge of
3d-transition metals.”
Sol. St. Comm., 1994, v.91, p.457-460.
 17. Vedrinskii R.V. and Bugaev L.A.,
“The effect of electron multiple-scattering and far atomic shells on the angular
distribution of Auger- and photoelectrons emitted by adsorbed atoms.”
Physica Scripta, 1992, v. T41, p.56-58.
 18. Bugaev L.A., Vedrinskii R.V., Levin I.G., Airapetian V.M.,
“Crystalline potential for photoelectron scattering phase shifts calculations and XAS
of Ti in crystals.”
J. Phys.: Cond. Matter, 1991, v. 3, p.8967-8979.
 19. Vedrinskii R.V., Bugaev L.A., Airapetian V.M.,
“The problem of potential construction and phase shifts calculation in XAS theory
of molecules and complexes containing low-Z atoms.”
J. Phys. B: At. Mol. Opt. Phys., 1991, v.24, p.1967-1975.
 20. Bugaev L.A., Vedrinskii R.V., Levin I.G.,
“Spherical wave formalism in the bond-angle determination problem by EXAFS.”
Physica B, 1989, v.158, p.378-382.
 21. Vedrinskii R.V., Bugaev L.A., Levin I.G.,
“Single and multiple electron scattering description in XAS theory and the
problem of solid structure investigation.”
Phys. St. Sol. (b), 1988, v.150, p.307-314.
 22. Bugaev L.A., Gegusin I.I., Datsyuk V.N., et.al.,
“Multiple scattering approach to the XANES theory of alkali halide crystals.
I. Crystalline potential in XAS problem.”
Phys. Stat. Sol. (b), 1986, v.133, p.195-202.
 23. Gegusin I.I., Datsyuk V.N., Bugaev L.A., et.al.,
“Multiple scattering approach to the XANES theory of alkali halide crystals.
II. Comparison with the experimental XAS.”
Phys. Stat. Sol. (b), 1986, v.134, p. 641-650.

24. Bugaev L.A. and Vedrinskii R.V.,
“Hartree-Fock approximation in the Scattering Wave Method. K-Absorption of ionic crystals in the single-scattering formalism (XANES,EXAFS).”
Phys. Stat. Sol. (b), 1985 v.132, p.459-464.
25. Vedrinskii R.V., Bugaev L.A., Gegusin I.I., et.al.,
“ X-Ray absorption near edge structure (XANES) for KCl.”
Sol. St. Comm., 1982, v. 44, p.1401-1407.