

For Board Editor

Curriculum Vitae

Dr. Mukhomorov Vladimir K.

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Sex: male

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Education: 1961-1966 Polytechnical University, Leningrad, USSR

1966-1970 Post-graduate course, Polytechnical University, Leningrad, USSR

Tenure: 1970-1980, Senior Researcher, Department of Theoretical and Mathematical Physics, S.I.Vavilov's State Optical Institute, Leningrad, USSR

1980-1989, Senior Researcher, Institute of Military Medicine, Leningrad, USSR

1989-2014, Head of Research Sector of Agrophysical Institute, St-Petersburg, Russia.

1998-until now, visiting professor, Department of Theoretical Physics of Università degli Studi di Napoli Federico II, Italy.

Field of my interests: Physics of Condensed Matter, Theoretical and Mathematical Physics, Nanostructures, Agrophysics and Agrochemistry, Relationships Bioactivity – Structure of Chemical Compounds, Information Theory in Biology and Chemistry, Biophysics, Chemical Physics, Optical Spectroscopy.

I am the author of the books:

1. Mukhomorov V.K. “*The Theory of Quasi One-Dimensional and Two-Dimensional Polaron Structures*”. NANOTECHNOLOGY, Chapter 12 in Vol. 1, titled "FUNDAMENTALS and APPLICATIONS", Eds. Dr. J.N. Govil, Dr. Sh. Sinha, Dr. K. Naveen, Stadium Press LLC, USA 2013, pp. 353-379.
2. Mukhomorov V.K. “*Introduction to the Theory of a Large Bipolaron. Fundamentals of the Bipolaron*”. Verlag/Publisher: Scholar's Press, Saarbrücken, Deutschland/Germany. 2015, p.196. www.scholars-press.com
3. Mukhomorov V.K. “*Bipolarons. Structure. Properties*”. Lambert Academic Publisher. Saarbrücken. Germany. 2011 (in Russian) p.287. <https://www.ljubljuknigi.ru/store/gb/book/%D0%91%D0%B8%D0%BF%D0%BE%D0%BB%D1%8F%D1%80%D0%BE%D0%BD%D1%8B/isbn/978-3-8473-0444-9>
4. Mukhomorov V.K. “*Modeling of chemical compounds bioactivity. Relationships of structure - bioactivity*”. Lambert Academic Publisher. Saarbrücken. Germany. 2012 (in Russian) p.165. <https://www.ljubljuknigi.ru/search/ru?utf8=%E2%9C%93&q=%D0%9C%D1%83%D1%85%D0%BE%D0%BC%D0%BE%D1%80%D0%BE%D0%B2>
5. Mukhomorov V.K., Anikina L.M. “*Dynamics of chemical elements in plants. Primary soil formation*”. Lambert Academic Publisher. Saarbrücken. Germany. 2012 (in Russian) p.265. <https://www.ljubljuknigi.ru/search/ru?utf8=%E2%9C%93&q=978-3-659-12689-5>
6. Mukhomorov V.K. “*The theory of NMR chemical shifts of fluorine in aromatic chemical compounds*”. Lambert Academic Publisher. Saarbrücken. Germany. 2013 (in Russian) p.185. <https://www.ljubljuknigi.ru/search/ru?utf8=%E2%9C%93&q=%D0%9C%D1%83%D1%85%D0%BE%D0%BC%D0%BE%D1%80%D0%BE%D0%B2>

Total publications more than 160.

Some of my recent articles:

1. Mathematical Justification of the Stability of Axially Symmetric Singlet Large Bipolaron // International Journal of Mathematical Models and Methods in Applied Sciences, 2015, vol. 9, pp.176-188. <http://www.naun.org/cms.action?id=10206>
2. Bipolaron Mechanism of High-Temperature Superconductivity of Ammonia Systems // Trends Journal of Sciences Research, (2015), vol. 2, no.2, pp.64-72. www.tjsr.org
3. The Dynamic Relations between the Content of Chemical Elements in the Roots and Reproductive Organs of Plants under Conditions of Primary Soil Formation // Agrophysics, 2015, no.1, pp.26-34. (in Russian).
4. Evolutionary Dynamics of Intercoupling of the Chemical Elements in Plants and Primary Soil-Forming Processes // Trends Journal of Sciences Research (2014), v.1, no.1, pp.1-12 www.tjsr.org
5. The Dynamics of Plants Productivity under Controlled Conditions. Diversity or Information Exchange? // Trends Journal of Sciences Research (2014), v.1, no.1, pp.17-25 www.tjsr.org
6. Bioactivity - Structure. Interrelation of Electronic and Information Factors of Biologically Activity of Chemical Compounds // Trends Journal of Sciences Research, (2014), vol. 1, no.1, pp.38-48. www.tjsr.org
7. Study the Dynamics of Vibrational Processes of Water-Mineral Metabolism of Plants in Ontogenesis // Trends Journal of Sciences Research, (2014), vol. 1, no.2, pp.28-37. www.tjsr.org
8. Landau-Pekar Bipolaron in Singlet and Triplet States // Review of Advances in Physics Theories and Applications (2014) vol. 1, no. 2, pp. 9-33. <http://www.pakinsight.com/>
9. Biological activity of chemical compounds and their molecular structure – Information Approach // Journal of Chemical Engineering and Chemistry Research (2014), v.1, no.1, p.54-65 www.ethanpublishing.com
10. Dynamics of the Information Exchange and the Causal-and-Effect Relationships in Plants under Controlled Conditions // World Journal of Agricultural Research, 2013, v.1, pp.18-24. <http://www.sciepub.com/journal/WJAR>
11. On the Spatial Symmetry of a Large Bipolaron in View of the Bipolaron Calculations of Kashirina N.I. and Lakhno V.D. //Sciences. Engineering. Technology. 2013. No.4. pp.11-37. <http://www.id-yug.com/index.php/ntt/archiv/2013/4-2013>
12. Quantum Oscillations of Large Polarons in Magnetic and Electric Fields in the Dielectric Layers and Bipolaron Formation. // Physical Review & Research International, 2013, v.3, no.4, pp.504-521. <http://www.sciencedomain.org/archives.php?iid=224&id=4>
13. **On the Possibility of Landau-Pekar Triplet Bipolaron Existence** // American Journal of Condensed Matter Physics, 2012, v.2 (4), pp.77-82.
14. “The Theory of Quasi One-Dimensional and Two-Dimensional Polaron Structures” Chapter 35 in collective monograph of the 8 vol. set on “NANOTECHNOLOGY”, “Fundamentals and Applications”, vol. 1, (Ed. Dr. Navani N.K., Dr. Sinha Shishir, Dr. J. N. Govil), 2013, Stadium Press LLC, Houston, USA, pp.353-379.
15. Biological Activity of Chlorinated Compounds and Intermolecular Interactions // Journal of Biological and Scientific Opinion, 2013, v.1, no.1, pp.15-20. www.jbsoweb.com
16. Linking the Radio-Protective Effects of Tryptamine Analogues with their Electronic and Steric Properties via Quantum Mechanics Calculations // Chemical Rapid Communications, 2013, v.1,no.1, pp.15-20. <http://www.researchpub.org/journal/crc/crc.html>
17. “Dynamics of Synergism and Antagonism of Chemical Elements in Plants” //Agrophysics, no.2, p.26-38 (2011) [in Russian].
18. **Entropy Approach to the Study of Biological Activity of Chemical Compounds. The Other Side of Radioprotectors** “Entropy Approach to Study of Biological Activity of Chemical Compounds: The Other Side of Radioprotectors”//Advance in Biol. Chem., v.1, p.1-5 (2011).
19. **Interrelation of Chemical Elements Content in Plants under Conditions of Primary Soil Formation** “Interrelation of Chemical Elements Content in Plants under Primary Soil Formation” //Open Journal of Soil Science, v.1, p.1-7 (2011).
20. <http://dx.doi.org/10.1140/epjb/e2011-10833-7> “Interaction of the Continual Polarons and the Bipolaron Formation under Action of Intense Laser Field”//Eur. Phys. J. B v.80 p.19-23 (2011).
21. **On the possibility of realizing a periodic low-density spatial distribution of excitons** //Phys. of the Solid State, v.52, N 2, p.241-245 (2010).

22. [Interrelation of Chemical Elements Content in Plants under Conditions of Primary Soil Formation](#) “Information Flows Between Organic Matter of the Root Environment and Elemental Chemical Composition of Plants”//Russ. Agricultural Sci., v.37, p.322-326 (2011).
23. [Instability of the uniform distribution of electrons solvated in ammonia to transition to a 2D periodic state](#) //Technical Physics, v.55, p.10-14 (2010).
24. Application the Statistical Conditional Entropy Function for Definition of Cause-and-Effect Relations during Primary Soil Formation // World Academy of Science, Engineering and Technology, vol. 56, July, pp. 745-749, (2009). www.wast.org
25. <http://link.aps.org/doi/10.1103/PhysRevB.76.144303> “Formation of a Large Polaron Crystal from a Homogeneous, Dilute Polaron Gas”// Phys. Rev. B, v.76, p.144303 (2007).
26. [Interrelation of Chemical Elements Content in Plants under Conditions of Primary Soil Formation](#) “Elemental Chemical Composition of Plants”// Russ. Agricultural Sci., v.35, p.378-383 (2009).
27. [Study of the one-dimensional periodic polaron structures](#) //J. Nanopart. Res., v.13, p.6113-6120 (2011).
28. Information Flows in Coupled Organic Matter-Microbiotic Community Systems of the Root Environment under Primary Pedogenic Processes // Russian Agricultural Sciences, 2008, v.34, no.5, pp.322-324 <http://link.springer.com/article/10.3103%2FS1068367408050121#page-1>.
29. [Stability of bipolarons, electron-electron correlations, the variational principle, and the virial theorem](#) // Phys. of the Solid State, v.48, N5, p.864-870 (2006).
30. “On the Possibility of the Existence of a Periodic Charge Density Distribution in Metal-Ammonia Solutions”//Russ. J. of Phys. Chem., v. 78, p.774-780 (2004).
31. [On the mechanisms of hydrated electrons regeneration in alkali aqueous solution after irradiation by light \(wave length >700 nm\)](#) // Czech. J. of Physics, v.49, p.503-504 (Suppl. S1) (1999).
32. “Bipolaron State of Solvated Electrons and Magnetic Properties of Metal-Ammonia Solutions”// Phys. Stat. Sol. (b), v.219, p.71-89 (2000).