# Shcherbakov Igor Nikolaevich

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## HIGHLIGHTS OF QUALIFICATIONS

- Successful experience working as a Chemistry lecturer in the University
- Planning and management of the research and educational projects
- Expert knowledge in Quantum Chemical program packages utilization (Gaussian, ORCA, PC GAMESS)
- Expertise in UV, IR, NMR, XAS spectroscopy of organic and transition metal coordination compounds

## EDUCATION AND PROFESSIONAL CERTIFICATES

Southern Federal University, Rostov-on-Don, Russia December 2014

- Defense of the doctoral Thesis "Interaction of the polydentate ligands in transition metal complexes"

Southern Federal University, Rostov-on-Don, Russia November 2011

- Supercomputing technologies for solving of the natural sciences problems (72 hours)

Southern Federal University, Rostov-on-Don, Russia July 2011

- Ph.D. in Chemistry, Dissertation title: "Quantum-chemical study of magnetochemical behavior of transition metal coordination compounds with nitrogen containing ligands"

Southern Federal University, Rostov-on-Don, Russia October-December 2010

- Program applications for computational chemistry and molecular modeling (72 hours)

Alicante University, Alicante, Spain February 2009

- Globalization and integration of the European Educational Space, familiarity with the work of autonomous educational organization

Southern Federal University, Rostov-on-Don, Russia April-July 2008

- Promotion of the foreign language scientific-communicative competence of the research and pedagogical staff (78 hours)

Rostov State University, Rostov-on-Don, Russia September 1981 – July 1986

- Specialist in Chemistry. Teacher in Chemistry.

## WORK EXPERIENCE

**Southern Federal University (former Rostov State University)**

**MSc program coordinator** January 2016 – present

- Coordinator of the English taught MSc program in Chemistry "Current Problems in Physical and Inorganic Chemistry"
- Member of the SFedU Expert Council in Chemistry

**Associate Professor** January 2014 – present

- Acting Head of the Physical and Colloid Chemistry Department
- Dean's Deputy of the Chemistry Department on information technologies development

**Associate Professor** September 2011 – January 2014

- Performs regular lectures and other classroom effort
- Courses Taught: Colloid Chemistry, Computational Chemistry, Numerical Methods in Chemistry, Theory of the Coordination Compounds Structure, Novel Information Technologies.
- Member of the Chemistry Department Scientific Council
- Research interests: Quantum chemical modeling of the coordination compounds structure and physical-chemical properties; magnetic exchange interactions modeling within broken symmetry approach and other high-level theoretic techniques; quantum-chemical modeling of the photochromic reactions in spiropyran derivatives; alternative energy utilization and storage (DSSC, supercapasitors)

**Southern Federal University** December 2006 – September 2011
**Rostov State University** January 1993 – December 2006
**Senior Lecturer**

- Performs regular lectures and other classroom effort
- Courses Taught: Colloid Chemistry, Theory of the Coordination Compounds Structure.
- Performed chemistry labs in Colloid Chemistry with particularly intended student experiments and researches
- Work with graduate students

**Assistant Professor** January 1988 –January 1993

- Performs regular lectures and other classroom effort
- Courses Taught: Colloid Chemistry, Statistical methods in Chemistry
- Performed chemistry labs in Colloid Chemistry with particularly intended student experiments and researches

**Junior Researcher** November 1986 – January 1988

- Research in organic chemistry
- Organic synthesis (photochromic spirocompunds)

## ADDITIONAL SKILLS

- Web development: HTML, PHP, JavaScript; Joomla CMS.
- Programming in Pascal, Fortran, Java
- Advanced knowledge of the operating systems Windows, Linix, advanced network administration

## HOBBIES /SPORTS

- Darts, Alpine ski, Bicycle

## PUBLICATIONS

Total published papers in peer-reviewed scientific journals – 116, including 71 publications from 2011 to present. Selected recent publications:

1. Popov L. D., Levchenkov S. I., Shcherbakov I. N., Tkachev V. V., Shilov G. V., Tupolova Y. P., Samorodnyaya D. S., Ivannikova E. V., Lukov V. V., Kogan V. A. Crystal structure and magnetic properties of binuclear copper(II) complex with 2-N-(phenylhydrazono)-3-((ethyl-2-olato)imino)-1-phenyl-1,2,3-butanetrione // Russ. J. Coord. Chem. 2016. Vol. 42. N 2. P. 81-84.

2. Alston J. R., Banks D. J., McNeill C. X., Mitchell J. B., Popov L. D., Shcherbakov I. N., Poler J. C. Adsorption studies of divalent, dinuclear coordination complexes as molecular spacers on SWCNTs // Physical Chemistry Chemical Physics. 2015. Vol. 17. N 44. P. 29566-29573.
3. Uraev A.I., Popov L.D., Levchenkov S.I., Shcherbakov I.N., Suponitskiy K.Yu., Garnovskii D.A., Lukov V.V., Kogan V.A. Crystal structure and magnetic properties of tetranuclear carbonate-bridged Cu(II) complex with Schiff base compartmental ligand with N2OS2 donor set // Mendeleev Communicatons. 2015. Vol. 25. N 1. P. 62-64.
4. Shcherbakov I. N., Levchenkov S. I., Popov L. D., Aleksandrov G. G., Etmetchenko L. N., Kogan V. A. Binuclear copper(II) complex with bis(azomethine) based on 1,3-diaminopropan-2-ol and 4-hydroxy-3-formylcoumarin: Crystal structure and magnetic properties // Russ. J. Coord. Chem. 2015. Vol. 41. N 2. P. 69-75.
5. Levchenkov S. I., Popov L. D., Beloborodov S. S., Shcherbakov I. N., Aleksandrov G. G., Tupolova Y. P., Lukov V. V., Kogan V. A. Binuclear dysprosium(III) complex with 2,6-diformyl-4-tert-butylphenol bisphthalazinylhydrazone: Crystal structure and magnetic properties // Russ. J. Coord. Chem. 2015. Vol. 41. N 12. P. 823-828.
6. Lukov V. V., Kogan V. A., Levchenkov S. I., Shcherbakov I. N., Popov L. D. Modern studies in the area of molecular magnets: State, problems, and prospects // Russ. J. Coord. Chem. 2015. Vol. 41. N 1. P. 1-15.
7. Bakale R. P., Naik G. N., Mangannavar C. V., Muchchandi I. S., Shcherbakov I. N., Frampton C., Gudasi K. B. Mixed ligand complex via zinc(II)-mediated in situ oxidative heterocyclization of hydrochloride salt of 2-chlorobenzaldehyde hydralazine hydrazone as potential of antihypertensive agent // European Journal of Medicinal Chemistry. 2014. Vol. 73. P. 38-45.
8. Shcherbakov I. N., Levchenkov S. I., Tupolova Y. P., Popov L. D., Vlasenko V. G., Zubavichus Y. V., Lukov V. V., Kogan V. A. Triggering the Sign of Magnetic Exchange Coupling in a Dinuclear Copper(II) Complex by Solvent Molecule Coordination // Eur. J. Inorg. Chem. 2013. Vol. 2013. N 28. P. 5033-5043.
9. Popov L. D., Levchenkov S. I., Shcherbakov I. N., Tsaturyan A. A., Tupolova Y. P., Starikova Z. A., Burlov A. S., Lukov V. V., Kogan V. A. 2-(N-tosylamino)benzaldehyde thiobenzoylhydrazone and its complexes with copper(II) and zinc(II): Synthesis and structures // Russ. J. Coord. Chem. 2013. Vol. 39. N 5. P. 367-372.
10. Popov L. D., Levchenkov S. I., Shcherbakov I. N., Suponitskii K. Y., Tupolova Y. P., Lukov V. V., Kogan V. A. Crystal structures of copper(II) and nickel(II) complexes with 1,3-bis(3,5-di-tert-butylsalicylideneamino)propan-2-ol // Russ. J. Coord. Chem. 2013. Vol. 39. N 10. P. 689-693.
11. Popov L. D., Levchenkov S. I., Shcherbakov I. N., Suponitskii K. Y., Burlov A. S., Beloborodov S. S., Lukov V. V., Kogan V. A. Tetranuclear Copper(II) Complex with N,N′-bis(2-N-Tosylaminobenzylidene)-1,3-Diaminopropan-2-ol: Crystal structure and magnetic properties // Russ. J. Coord. Chem. 2013. Vol. 39. N 4. P. 342-346.
12. Popov L. D., Levchenkov S. I., Shcherbakov I. N., Minin V. V., Aleksandrov G. G., Ugolkova E. A., Lukov V. V., Kogan V. A. Polymeric copper(II) complexes with 4-formyl-3-methyl-1-phenylpyrazol-5-one hetarylhydrazones: Synthesis and crystal structures // Russ. J. Coord. Chem. 2013. Vol. 39. N 12. P. 849-856.
13. Popov L. D., Levchenkov S. I., Shcherbakov I. N., Kiskin M. A., Borisova N. E., Tsaturyan A. A., Kogan V. A. Crystal structure of bis-Isonicotinoyl hydrazone of 2,5-diformylpyrrole // J. Struct. Chem. 2013. Vol. 54. N 3. P. 592-597.
14. Popov L. D., Levchenkov S. I., Shcherbakov I. N., Aleksandrov G. G., Tupolova Y. P., Lukov V. V., Askalepova O. I., Kogan V. A. Crystal structure of the polycyclic oxidation product of 1′-phthalazinylhydrazone of 2-formylpyrrole // J. Struct. Chem. 2013. Vol. 54. N 3. P. 619-623.
15. Popov L. D., Bulanov A. O., Raspopova E. A., Morozov A. N., Scherbakov I. N., Kobeleva O. I., Valova T. M., Barachevskii V. A. Synthesis of new spiropyranes and study of the effect of the nature of substituents on their photochromism and complexation // Russ. J. Gen. Chem. 2013. Vol. 83. N 6. P. 1111-1116.
16. Levchenkov S. I., Shcherbakov I. N., Popov L. D., Lyubchenko S. N., Suponitskii K. Y., Tsaturyan A. A., Beloborodov S. S., Kogan V. A. Transition metal complexes with 2,6-Di-tert-butyl-p-quinone 1′-phthalazinylhydrazone // Russ. J. Gen. Chem. 2013. Vol. 83. N 10. P. 1928-1936.
17. Levchenkov S. I., Shcherbakov I. N., Popov L. D., Lukov V. V., Minin V. V., Starikova Z. A., Ivannikova E. V., Tsaturyan A. A., Kogan V. A. The magnetic exchange interaction via N–H···O-

bonding in copper(II) complex with 1-phenyl-3-methyl-4-formylpyrazol-5-one 2-quinolylhydrazone // Inorg. Chim. Acta. 2013. Vol. 405. N 0. P. 169-175.
18. Levchenkov S. I., Popov L. D., Shcherbakov I. N., Aleksandrov G. G., Zubenko A. A., Kogan V. A. Tautomerism of substituted salicylaldehyde and 2-diphenylphosphinebenzaldehyde 1′-phthalazinylhydrazones: X-ray crystallography and quantum chemical modeling // J. Struct. Chem. 2013. Vol. 54. N 5. P. 952-959.
19. Levchenkov S. I., Popov L. D., Shcherbakov I. N., Aleksandrov G. G., Tsaturyan A. A., Beloborodov S. S., Maevskii O. V., Kogan V. A. Crystal structure and magnetic properties of the binuclear copper(II) complex with 2,6-diformyl-4-tert-butylphenol bis(imidazolinylhydrazone) // Russ. J. Coord. Chem. 2013. Vol. 39. N 7. P. 493-499.
20. Ivanova T. M., Shcherbakov I. N., Linko R. V., Kiskin M. A., Evstifeev I. S., Sidorov A. A., Novotortsev V. M., Eremenko I. L. XPS study of the electronic structure of heterometallic complexes Fe2MO(Piv)6(HPiv)3 (M = Ni, Co) // Russian Journal of Inorganic Chemistry. 2013. Vol. 58. N 8. P. 945-950.
21. Yaragatti N. B., Kulkarni M. V., Shcherbakov I. N. Synthesis, modeling and biological studies on 4-2'(2, 3- dihydrobenzofuranyl) coumarins // Arkivoc. 2012. Vol. 2012, Part(viii). N P. 1-16.
22. Raspopova E. A., Morozov A. N., Popov L. D., Shcherbakov I. N., Levchenkov S. I., Kogan V. A. 3,5-Di-tert-butyl-1,4-benzoquinone ferrocenoylhydrazone and its zinc(II), palladium(II), and mercury(II) complexes: Structure and properties // Russ. J. Gen. Chem. 2012. Vol. 82. N 1. P. 131-137.
23. Popov L. D., Tupolova Y. P., Shcherbakov I. N., Levchenkov S. I., Suponitsky K. Y., Maevskiy O. V., Kogan V. A. A novel binuclear uranyl(VI) complex of bis(N,N'-3-Carboxysalicylidene)-1, 3-Diaminopropan-2-ol: Synthesis, structure, and properties 1 // Russian Journal of Coordination Chemistry/Koordinatsionnaya Khimiya. 2012. Vol. 38. N 9. P. 651-655.
24. Popov L. D., Levchenkov S. I., Shcherbakov I. N., Lukov V. V., Suponitsky K. Y., Kogan V. A. Binuclear copper(II) complexes of Schiff base ligand derived from 1-phenyl-3-methyl-4-formylpyrazol-5-one and 1,3-diaminopropan-2-ol: Synthesis, structure and magnetic properties // Inorg. Chem. Commun. 2012. Vol. 17. N 0. P. 1-4.
25. Popov L. D., Levchenkov S. I., Kiskin M. A., Shcherbakov I. N., Tupolova Y. P., Maevskii O. V., Kogan V. A. Crystal and molecular structure of the copper(II) schiff-base complex containing the azo group // J. Struct. Chem. 2012. Vol. 53. N 2. P. 393-396.
26. Bryleva M. A., Kravtsova A. N., Shcherbakov I. N., Levchenkov S. I., Popov L. D., Kogan V. A., Tupolova Y. P., Zubavichus Y. V., Trigub A. L., Soldatov A. V. X-ray absorption spectroscopic and magnetochemical analysis of the atomic structure of copper(II) complexes with diacetyl monoxime 1-phthalazinyl hydrazone // J. Struct. Chem. 2012. Vol. 53. N 2. P. 295-305.
27. Tupolova Y., Popov L., Levchenkov S., Shcherbakov I., Suponitskii K., Ionov A., Kogan V. Crystal structure and magnetic properties of the binuclear copper(II) complex based on 1,3-diaminopropan-2-ol N,N′-bis(3-formyl-5-<i>tert -butylsalicylidene) // Russ. J. Coord. Chem. 2011. Vol. 37. N 7. P. 552-555.
28. Popov L. D., Shcherbakov I. N., Levchenkov S. I., Tupolova Y. P., Burlov A. S., Aleksandrov G. G., Lukov V. V., Kogan V. A. Transition metal complexes with 2-(N-tosylamino)benzaldehyde 1-phthalazinylhydrazone // Russ. J. Coord. Chem. 2011. Vol. 37. N 7. P. 483-491.
29. Popov L. D., Shcherbakov I. N., Kogan V. A., Shirinyan V. Z., Krayushkin M. M., Kobeleva O. I., Valova T. M., Barachevskii V. A. Spectrokinetic study of photochromic transformations of spironaphthopyran metal complexes // Russian Journal of Physical Chemistry B. 2011. Vol. 5. N 3. P. 461-464.
30. Mishchenko A. V., Lukov V. V., Popov L. D., Tupolova Y. P., Shcherbakov I. N., Levchenkov S. I., Kogan V. A., Vlasenko V. G., Askalepova O. I. Synthesis and physico-chemical study of complexation of glyoxylic acid aroylhydrazones with Cu(II) in solution and solid phase // J. Coord. Chem. 2011. Vol. 64. N 11. P. 1963 - 1976.
31. Bulanov A., Shcherbakov I. N., Popov L. D., Shasheva E. Y., Belikov P. A., Starikova Z. A. Novel hydrazone derivatives of 7-hydroxy-3',3'-dimethyl-3'H-spiro[chromene-2,1'-isobenzofuran]-8-carbaldehyde // Acta Crystallographica Section C. 2011. Vol. 67. N 3. P. o85-o88.