

DETAILED CURRICULUM VITAE



DR. KONSTANTIN LUZYANIN

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PERSONAL INFORMATION

Home address	Calçada dos Mestres, 55, 1-esq, 1070-176 Lisboa, Portugal
Nationality	Portugal/Russian Federation
Date of birth	November 14 th , 1980
Place of birth	Pskov, Russian Federation
Gender	Male
Mother tongue	Russian
Other languages	Portuguese (fluently), English (fluently)
Driving License	Type B

INVESTIGATION INTERESTS AND SELECTED SKILLS

Fields of expertise	Inorganic Chemistry; Coordination Chemistry; Organometallic Chemistry; Synthetic Organic Chemistry and Catalysis; Analytical and Environmental Chemistry Bioinorganic Chemistry Multinuclear NMR spectroscopy
Present investigation interests	Activation and reactivity of unsaturated substrates (organonitriles, isocyanides, alkynes, alkenes, carbon monoxide, dinitrogen) upon coordination to metal centers; Development of novel synthetic strategies for sustainable catalytic and metal-mediated transformations of organic substrates affording compounds of high added value; Synthesis of organometallic and organic compounds, exhibiting antitumor, optical or catalytic properties; Molecular electrochemistry of coordination and organometallic compounds.

ACADEMIC HABILITATIONS, TRAINING AND SELECTED SKILLS

EDUCATION

- February, 2003 – January, 2007 Ph.D. student (Instituto Superior Tecnico, Lisbon, Portugal) under joint supervising of Prof. Dr. Armando J. L. Pombeiro (Instituto Superior Tecnico, Portugal) and Prof. Dr. Vadim Yu. Kukushkin (St.Petersburg State University, Russia). Finished with a successful defense of Ph.D. thesis entitled "Pt-mediated coupling of organonitriles with simple and bifunctional HO-nucleophiles: synthetic and structural approaches". Ph.D. degree is granted on January, 11th, 2007.
- March, 1999 – April, 1999 Participation in The First National Teaching Seminar "Environmental monitoring at the school level: theoretical and practical approaches", St.Petersburg, Russia.
- 1997–2002 Student (the final media is 4.83 in the scale of 0–5, and 19 in the scale of 0–20), Department of Chemistry, St.Petersburg State University, Russia. Final project is entitled "Application of modern analytical methods (IR, NMR spectroscopies and FAB-mass-spectrometry) for the analysis of platinum imino- complexes of a novel type". Graduated from St.Petersburg University with the «Red Diploma» as one of the highest-ranking students, June 2002.
- 1987–1997 Student (the final media is 5.00 in the scale of 0–5, and 20 in the scale of 0–20), school and high school, Pskov, Russia. Graduated with the Silver Medal as one of the highest-ranking school students, May, 1997.

RESEARCH EXPERIENCE & TRAINING

- since July, 2009 – present Research Associate (Investigador Auxiliar) at the Centro de Química Estrutural, Instituto Superior Técnico, Lisbon, Portugal.
- since November, 2009 – present Manager of the IST-UTL NMR Center of the Portuguese NMR Network (Instituto Superior Técnico, TU Lisbon)
- since 2007 – present Research project: "Preparation of the novel types of metal heteroatom-stabilized carbenes from metal-bound isonitriles".
- February, 2007 – June, 2009 Post-doctoral researcher (Instituto Superior Tecnico, Lisbon, Portugal). Scientific advisor: Prof. Dr. Armando J. L. Pombeiro.
- 2007–2009 Service & Maintenance Responsible for the daily maintenance of low-field NMR laboratory (300 and 400 MHz Bruker Avance II spectrometers), Centro de Química Estrutural, Instituto Superior

Técnico, Lisbon, Portugal.

- 1999–2007 Research work: "The coupling of simple and polyfunctional HO- and HN- nucleophiles with metal-activated *organonitriles*" under supervision of Prof. Dr. Vadim Yu. Kukushkin (St.Petersburg State University) and Prof. Dr. A. J. L. Pombeiro (Instituto Superior Técnico, Lisbon).
- 2003–2007 Service & Maintenance Responsible for the daily maintenance of the NMR laboratory (300 MHz Varian spectrometer), Centro de Química Estrutural, Instituto Superior Técnico, Lisbon, Portugal.
- 2002 Five-months studentship at the Centro de Química Estrutural, Instituto Superior Técnico under supervision of Prof. Armando J. L. Pombeiro: *metal-mediated synthesis and catalysis*.
- 2001 Two-months summer studentship at the Department of Chemistry, University of Wroclaw, under supervision of Prof. Piotr Sobota – *organometallic chemistry: preparation and spectroscopic characterization of the complexes*.
- 2001 Three-months studentship at the Centro de Química Estrutural, Instituto Superior Técnico under supervision of Prof. Armando J. L. Pombeiro – *preparative coordination chemistry*.

SELECTED ACQUIRED SKILLS

- Synthetic skills Acquired experience for the preparation of air sensitive, and/or unstable, and/or toxic inorganic, organic and organometallic compounds using normal and Schlenk/glove box techniques. Use of non-conventional techniques for high-pressure, focused microwave-induced and solvothermal preparation of organic and organometallic compounds.
- Analytical skills Application of multinuclear NMR methods (standard multinuclear 1D ^1H , ^{13}C , ^{15}N , ^{31}P , ^{51}V , ^{117}Sn , ^{195}Pt , DEPT, NOE techniques; 2D methods: COSY/DQFCOSY, TOCSY, HMQC/HSQC, HMBC, HMQCTOCSY, HETCOR, NOESY/ROESY, DOSY). Knowledge of the practical aspects of the NMR spectroscopy at the administrator level, *viz.* calibration of NMR probes for new nuclei, optimization of power values and pulses for new NMR experiments, creating combined NMR experiments *etc.* Application of FT-IR spectroscopy; FAB/ESI/MALDI mass-spectrometry, single crystal X-ray diffraction for characterization of complex inorganic, organic and organometallic species. Application of UV and NMR spectroscopy for kinetic studies and estimate of the thermodynamic parameters of reactions in solution. Application of cyclic voltammetry and controlled potential

electrolysis; application of the electrochemical methods for the environmental analysis and monitoring.

Environmental
monitoring skills

Applications of HPLC/GC for the analysis and separation of the organic compounds, including environmental targets.

Application of atomic emission and absorption spectroscopies for the qualitative and quantitative analysis of elements, including environmental targets.

Knowledge of the practical aspects of the environmental analysis and monitoring: sampling, sample handling and preservation, methods selection, statistical analysis of the obtained results.

TEACHING AND SUPERVISING ACTIVITIES

TEACHING / TRAINING AT THE UNIVERSITY LEVEL

2011, February – June (2 nd term)	Participation in the discipline “Chemistry II” for Chemistry/Chemical Engineering/Biological Engineering students (4h/week, 1 term), Instituto Superior Técnico, TU Lisbon, Portugal.
2011, May	Delivering an invited lecture “NMR spectroscopy: principles and applications” within the discipline “Structural Biology” for Master In Chemistry/Chemical Engineering/Biological Engineering students (Instituto Superior Técnico, Lisbon, Portugal), 2h.
2011, February – June (2 nd term)	Delivering the discipline “Specialization Laboratories II – Advanced Spectroscopic Techniques” for Master in Chemistry student Mr. Rogerio S. Chay (3h/week, 1 term, 3 ECTS), Instituto Superior Técnico, TU Lisbon, Portugal.
2010, November	Delivering the invited lectures “Cross-coupling reactions” and “Olefine methathesis and related processes” within the discipline “Advanced Synthetic Strategies” for Master In Chemistry/Chemical Engineering/Biological Engineering students (Instituto Superior Técnico, Lisbon, Portugal), 4h.
2010, May	Delivering an invited lecture “NMR spectroscopy: principles and applications” within the discipline “Structural Biology” for Master In Chemistry/Chemical Engineering/Biological Engineering students (Instituto Superior Técnico, Lisbon, Portugal), 2h.
2010, March	Delivering an invited lecture “NMR spectroscopy: principles and applications” within the discipline “Spectroscopy” for Master In Chemistry/Chemical Engineering/Biological Engineering students (Instituto Superior Técnico, Lisbon, Portugal), 4h.
2009, September – present (each odd month)	Delivering a periodical training course for students on “Practical aspects of NMR spectroscopy at Bruker NMR spectrometers” (Centro de Química Estrutural, Instituto Superior Técnico, Lisbon, Portugal), each course includes 10 h, 6 participants.
2008, December	Organizing and Teaching at the 1 st Students&Researchers Training Course on NMR Spectroscopy (Centro de Química Estrutural, Instituto Superior Técnico, Lisbon, Portugal), 32h, 35 participants.
2008, April	Delivering a training course for students on “Practical aspects of NMR spectroscopy at Bruker NMR spectrometers: advanced techniques” (Centro de Química Estrutural, Instituto Superior Técnico, Lisbon, Portugal), 12 h, 10 participants.

- 2008, March Delivering a training course for students on “Practical aspects of NMR spectroscopy at Bruker NMR spectrometers” (Centro de Química Estrutural, Instituto Superior Técnico, Lisbon, Portugal), 12 h, 10 participants.
- 2007, June Delivering a training course for students on “Practical aspects of NMR spectroscopy at Bruker NMR spectrometers” (Centro de Química Estrutural, Instituto Superior Técnico, Lisbon, Portugal), 12 h, 16 participants.
- 2007, February Delivering a training course for students on “Practical aspects of NMR spectroscopy at Bruker NMR spectrometers” (Centro de Química Estrutural, Instituto Superior Técnico, Lisbon, Portugal), 12 h, 15 participants.
- 2005, February Delivering a training course for students on “Practical aspects of NMR spectroscopy at Varian NMR spectrometer” (Centro de Química Estrutural, Instituto Superior Técnico, Lisbon, Portugal), 12 h, 12 participants.
- 2002, September – 2003, January (1st term) Delivering the practical course “Laboratories of the Analytical Chemistry” for the 2nd-year Chemistry students (6h/week, 1 term), St. Petersburg State University, Russia.

TEACHING AT THE HIGH-SCHOOL LEVEL

- 1999–2002 Delivered a chemistry lecture course for high school students at the “Palace of Creativity”, St.Petersburg, Russia.
- 1998–2001 Teaching Assistant at the High School 273, St.Petersburg, Russia, with advanced learning of ecology and environmental chemistry. Deliver classes on "Environmental Chemistry" and "Environmental Monitoring".

SUPERVISING ACTIVITY

- 2011, July – present Co-supervising of Mr. Mikhail Kinzhalov **Ph.D. in Chemistry research project** entitled “Novel types of aminocarbene complexes from the transformation of metal-bound isonitriles” (Ph.D. fellowship, on leave from the St. Petersburg State University, Russia).
- 2011, July – present Co-supervising of Mr. Bruno G. Rocha research project entitled “Novel aminocarbene catalysts for hydrosilylation reactions” (Research fellowship, Centro de Química Estrutural, Instituto Superior Técnico, TU Lisbon, Portugal).
- 2011, Supervising of Mrs. Tetiana Anisimova **Degree in Chemistry**

- February – July **research project** entitled “Hydrolytic transformations of nitriles and isonitriles at platinum and palladium centers” (Research fellowship, Centro de Química Estrutural, Instituto Superior Técnico, TU Lisbon, Portugal).
- 2010, September – present Supervising of Mr. Rogerio S. Chay **Master in Chemistry research project** entitled “Novel types of catalytically active aminocarbene complexes” (Research fellowship, Centro de Química Estrutural, Instituto Superior Técnico, TU Lisbon, Portugal).
- 2010,
June – November Supervising of Mr. Dmitry Bolotin research project entitled “The activation of isonitriles at metal centers toward polyfunctional nucleophiles” (early stage research fellowship, Centro de Química Estrutural, Instituto Superior Técnico, TU Lisbon, Portugal).
- 2009, October – 2010, June Supervising of Mrs. Elena Valishina **Master in Chemical Engineering research project** entitled “Novel metallocarbene precatalysts for green catalytic application” (early stage research fellowship, Centro de Química Estrutural, Instituto Superior Técnico, TU Lisbon, Portugal). Degree is awarded by the Moscow State Academy of Precise Chemical Technology, Russia.
- 2009,
May – October Supervising of Mr. Alexander Tskhovrebov **Master in Chemistry research project** entitled “Metal-mediated coupling of isonitriles with benzophenone hydrazone accomplishing metallocarbene species with high catalytic activity in Suzuki-Miyaura coupling” (early stage research fellowship, Centro de Química Estrutural, Instituto Superior Técnico, TU Lisbon, Portugal). Degree is awarded by the St. Petersburg State University, Russia.
- 2008, December – present Supervising of Mr. Rogerio S. Chay research project entitled “The activation of isonitriles ligated to palladium toward selected nucleophiles” (early stage research fellowship, Centro de Química Estrutural, Instituto Superior Técnico, TU Lisbon, Portugal).
- 2008,
June – November Supervising of Mr. Alexander Tskhovrebov research project entitled “The activation of nitrile and isonitriles at metal centers toward selected dipoles” (early stage research fellowship, Centro de Química Estrutural, Instituto Superior Técnico, TU Lisbon, Portugal).
- 2008, February – 2009, January Co-supervising of Mr. Rui Carvalho research project entitled “The complexation of 3-iminoisoindolin-1-ones at metal centers and their reactivity toward organonitriles” (early stage research fellowship, Centro de Química Estrutural, Instituto Superior Técnico, TU Lisbon, Portugal).
- 2007,
January – May Co-supervising of Lic. Pavel Guschin research projects entitled “Ni(II)-mediated coupling of nitriles and 3-iminoisoindolin-1-ones — a direct method for the preparation of imidoylamidine complexes”

and “Preparation of Pt-nitrosooxime complexes via direct oxidation of Pt-oximehydroxylamine species” (early stage research fellowship, Centro de Química Estrutural, Instituto Superior Técnico, TU Lisbon, Portugal).

2005,
January – May

Co-supervising of Lic. Julia Golenetskaya research project entitled “Preparation of platinum dinitroso complexes via direct oxidation of Pt-bishydroxylamine species” (early stage research fellowship, Centro de Química Estrutural, Instituto Superior Técnico, TU Lisbon, Portugal).

CONFERENCES/MEETINGS ORGANIZATION AND MANAGING ACTIVITIES

ORGANIZING OF MEETINGS AND CONFERENCES

- 2011,
May – present Member of the Secretariat and Local Organizing Committee of the 25th International Conference on Organometallic Chemistry (ICOMC 2012), to be held in Lisbon, Portugal, in September 2012.
- 2011,
May – present Co-chairmen of the National Training Site on “Modern Methods of Structure Elucidation–2011”, to be held in the Instituto Superior Técnico, Lisbon, Portugal, on November 14th–18th, 2011.
- 2010, December Co-chairmen of the National Training Site on “Modern Methods of Structure Elucidation–2010”, December 13th–17th, 2010, Centro de Quimica Estrutural, Instituto Superior Técnico, Lisbon, Portugal (40 participants).
- 2010, September Member of the Organizing Committee of the XII Iberian Meeting of Electrochemistry, September 8th–11th, 2010, Lisbon, Portugal.
URL: <http://cqe.ist.utl.pt/events/ime12/>
- 2010,
September –
November Co-chairmen of the series of the open scientific conferences “ChemFORUM 2010 Autumn Edition”, Centro de Quimica Estrutural, Instituto Superior Técnico, Lisbon, Portugal.
URL: <http://cqe.ist.utl.pt/events/chemforum/>
- 2010,
March – May Co-chairmen of the series of the open scientific conferences “ChemFORUM 2010 Spring Edition”, Centro de Quimica Estrutural, Instituto Superior Técnico, Lisbon, Portugal.
URL: <http://cqe.ist.utl.pt/events/chemforum/>
- 2009, October Co-chairmen of the University Student School on “Modern Methods of Structure Elucidation–2009”, October 6th–9th, 2009, Centro de Quimica Estrutural, Instituto Superior Técnico, Lisbon, Portugal (75 participants).
- 2008, December Co-chairmen of the 1st Students&Researchers Training Course on NMR Spectroscopy (32h, 35 participants).
- 2005, February Member of the Organizing Commission of the “1st Year Aquachem Meeting”, Academy of Sciences of Lisbon and Instituto Superior Técnico–TU Lisbon, February, 4th – 5th, 2005, Lisbon, Portugal.
- 2003, September Member of the Joint Local Executive Commission of the International Conference “New Trends in Molecular Electrochemistry”, Academy of Sciences of Lisbon, September, 16th–20th, 2003, Lisbon, Portugal.

2002, June Member of the Organizing Commission of the 1st National Conference "Analytical Instruments", St.Petersburg State University, June, 18th–21st, 2002, St.Petersburg, Russia.

WEB-DEVELOPING

2008, February – present Web-development of the site "25th International Conference on Organometallic Chemistry (ICOMC 2012)".
URL: <http://cqe.ist.utl.pt/events/icomc25/>

2008, February – present Web-development and the regular maintenance of the site "IST-UTL NMR Center" as a part of the Portuguese Nuclear Magnetic Resonance Network, Lisbon, Portugal.
URL: <http://cqe.ist.utl.pt/networks/nmr/>

2008, February – present Web-development and the regular maintenance of the site "Centro de Química Estrutural", Instituto Superior Técnico, Lisbon, Portugal.
URL: <http://cqe.ist.utl.pt>

2002, January – present Development and regular maintenance of the site "Laboratory of Metal-Mediated Synthesis", St.Petersburg State University, Russia.
URL: <http://ptchemin.chem.spbu.ru/>

UNIVERSITY MANAGING ACTIVITIES

since November, 2009 – present Manager of the IST-UTL NMR Center of the Portuguese NMR Network (Instituto Superior Técnico, TU Lisbon)

2007–2009 Service & Maintenance Responsible for the daily maintenance of low-field NMR laboratory (300 and 400 MHz Bruker Avance II spectrometers), Centro de Química Estrutural, Instituto Superior Técnico, Lisbon, Portugal.

2003–2007 Service & Maintenance Responsible for the daily maintenance of the NMR laboratory (300 MHz Varian spectrometer), Centro de Química Estrutural, Instituto Superior Técnico, Lisbon, Portugal.

AWARDS, GRANTS AND PRIZES

- 2011 Award and a Grant for the Participation in the “Annual Meeting of the New Champions 2011 – World Economic Forum”, September 2011, Dalian, China.
- 2010 Honourous Mention at the TU Lisbon-Deloitte – Young Researcher Award-2009 for the scientific results published at the ISI WOS referred journals, Lisbon, Portugal.
- 2010 First prize for the best oral presentation at 2nd Portuguese Young Chemists Meeting, Lisbon, Portugal, April, 21st–23rd, 2009.
- 2009 Award and a Grant for the Participation in the “Annual Meeting of the Nobel Laureates with the Young Scientists – 2009”, Lindau, Germany.
- 2009 Honourous Mention at the TU Lisbon-Deloitte – Young Researcher Award-2008 for the scientific results published at the ISI WOS referred journals, Lisbon, Portugal.
- 2008 “Antonio Xavier Prize-2008” (Prémio António Xavier 2008) for the NMR studies, established by the Bruker(R) Group, Lisbon, Portugal.
- 2008 First prize for the best oral flash presentation at 1st Portuguese Young Chemists Meeting, Lisbon, Portugal, October, 15th–17th, 2008.
- 2003 Diploma and grant from the International Soros Science Foundation – ISSEP International Soros Science Foundation – ISSEP.
- 2002 Graduated with "Red Diploma" as one of the highest-ranking university students, St.Petersburg State University, Russia.
- 2002 Diploma "World Keepers" at the 4th National competition of the environmental research works National Association for Chemical Education (under guidance of Russian Academy of Science).
- 2002 Awarded the Diploma and grant from the National Centre for Basic Natural Science, Russian National Centre for Basic Natural Science, St. Petersburg.
- 2002 Diploma and grant from the International Soros Science Foundation – ISSEP International Soros Science Foundation – ISSEP.
- 2001 Diploma "World Keepers" at the 3rd National competition of the environmental research works National Association for Chemical Education (under guidance of Russian Academy of Science).

- 2001 Awarded the Diploma and grant from the National Centre for Basic Natural Science, Russia National Centre for Basic Natural Science, St. Petersburg, Russia.
- 2001 Diploma and grant from the International Soros Science Foundation – ISSEP International Soros Science Foundation – ISSEP.
- 2000 Diploma and grant from the International Soros Science Foundation – ISSEP International Soros Science Foundation – ISSEP.
- 2000 Diploma for distinguished student’s research in chemistry from an industrially oriented firm TEX, Industrially oriented firm TEX, St. Petersburg, Russia.
- 1998 Diploma and grant from the International Soros Science Foundation – ISSEP International Soros Science Foundation – ISSEP.
- 1997 Awarded Silver medal as one of the highest ranking school-students, Secondary/High Scholl 12, Pskov, Russia.

PUBLICATIONS

PAPERS IN INTERNATIONAL SCIENTIFIC PERIODICALS WITH REFEREES

Total number of citations: 238 (08/2011) h-index: 9 (08/2011)

Total number of citations (without self-citations): 163 (08/2011)

29. Kopylovich, M. N.; Mahmudov, K. T.; Haukka, M.; Luzyanin K. V.; Pombeiro, A. J. L. **(E)-2-(2-(2-hydroxyphenyl)hydrazono)-1-phenylbutane-1,3-dione: tautomerism and coordination to copper(II)**, *Inorg. Chim. Acta*, **2011**, *374*, 175–180. DOI: [10.1016/j.ica.2011.02.094](https://doi.org/10.1016/j.ica.2011.02.094). IF (impact factor): 1.899. CIT (number of citations): 0
28. Tskhovrebov, A. G.; Luzyanin, K. V.; Dolgushin, F. M.; Guedes da Silva, M. F. C.; Pombeiro, A. J. L.; Kukushkin, V. Yu. **Novel reactivity mode of metal diaminocarbenes: palladium(II)-mediated coupling between acyclic diaminocarbenes and isonitriles leading to dinuclear species**, *Organometallics*, **2011**, *30*, 3362–3370. DOI: [10.1021/om2002574](https://doi.org/10.1021/om2002574). IF (impact factor): 3.888. CIT (number of citations): 0
27. Mahmudov, K. T.; Kopylovich, M. N.; Luzyanin K. V.; Mizar, A.; Guedes da Silva, M. F. C.; Andre, V.; Pombeiro, A. J. L. **Structural and thermal properties of three cyano-substituted azoderivatives of beta-diketones**, *J. Mol. Struct.* **2011**, *992*, 72–76. DOI: [10.1016/j.molstruc.2011.02.045](https://doi.org/10.1016/j.molstruc.2011.02.045). IF (impact factor): 1.599. CIT (number of citations): 0
26. Tskhovrebov, A. G.; Luzyanin, K. V.; Kuznetsov, M. L.; Sorokoumov, V. N.; Balova, I. A.; Haukka, M. Kukushkin, V. Yu. **Substituent R-dependent regioselectivity switch in nucleophilic addition of N-phenylbenzamidines to Pd(II)- and Pt(II)-complexed isonitrile RNC giving aminocarbene-like species**, *Organometallics*, **2011**, *30*, 863–874. DOI: [10.1021/om101041g](https://doi.org/10.1021/om101041g). IF (impact factor): 3.888. CIT (number of citations): 0
25. Kopylovich, M. N.; Mahmudov, K. T.; Guedes da Silva, M. F. C.; Figiel P.J.; Karabach, Y. Y.; Kuznetsov, M. L.; Luzyanin K. V.; Pombeiro, A. J. L. **Ortho-hydroxyphenylhydrazo-beta-diketones: tautomerism, coordination ability, and catalytic activity of their copper(II) complexes toward oxidation of cyclohexane and benzylic alcohols**, *Inorg. Chem.* **2011**, *50*, 918–931. DOI: [10.1021/ic101516k](https://doi.org/10.1021/ic101516k). IF (impact factor): 4.325. CIT (number of citations): 0
24. Anisimova, T. B.; Bokach, N. A.; Luzyanin, K. V.; Haukka, M. Kukushkin, V. Yu. **Push-pull nitrile ligands exhibit specific hydration patterns**, *Dalton Trans.* **2010**, *39*, 10790 – 10798. DOI: [10.1039/c0dt00711k](https://doi.org/10.1039/c0dt00711k). IF (impact factor): 3.647. CIT (number of citations): 0
23. Silva, F. S.; Luzyanin, K. V.; Kirillova, M. V.; Guedes da Silva, M. F. C.; Martins, L. M. D. R.; Pombeiro, A. J. L. **Novel scorpionate and pyrazole dioxovanadium complexes, catalysts for carboxylation and peroxidative oxidation of alkanes**, *Adv. Synth. Catal.* **2010**, *352*, 171–187. DOI: [10.1002/adsc.200900660](https://doi.org/10.1002/adsc.200900660). IF (impact factor): 5.250. CIT (number of citations): 3
22. Luzyanin, K. V.; Tskhovrebov, A. G.; Carias, M. C.; Guedes da Silva, M. F. C.; Pombeiro, A. J. L.; Kukushkin, V. Yu. **Novel metal-mediated (M = Pd, Pt) coupling between isonitriles and benzophenone hydrazone as a route to aminocarbene complexes exhibiting high catalytic activity (M = Pd) in the Suzuki-Miyaura reaction**, *Organometallics*, **2009**, *28*, 6559–6566. DOI: [10.1021/om900682v](https://doi.org/10.1021/om900682v). IF (impact factor): 4.204. CIT (number of citations): 3

21. Gajewska, M.; [Luzyanin, K. V.](#); Guedes da Silva, M. F. C.; Li, Q.; Cui, J.; Pombeiro, A. J. L. **Cyclic Trinuclear Diorganotin(IV)-complexes – the first tin compounds bearing oximehydroxamate ligands: synthesis, structural characterization and high in vitro cytotoxicity**, *Eur. J. Inorg. Chem.* **2009**, 3765–3769. DOI: [10.1002/ejic.200900388](#). IF (impact factor): 2.941. CIT (number of citations): 2
20. Kopylovich, M. N.; [Luzyanin, K. V.](#); Kukushkin, V. Yu.; Haukka, M.; Pombeiro, A. J. L. **The first metal complexes bearing ligated 3-iminoisoindolin-1-ones**, *Inorg. Chim. Acta*, **2009**, 362, 2994–2998. DOI: [10.1016/j.ica.2009.01.033](#). IF (impact factor): 2.322. CIT (number of citations): 0
19. [Luzyanin, K. V.](#); Guedes da Silva, M. F. C.; Kukushkin, V. Yu.; Pombeiro, A. J. L. **First example of an imine addition to coordinated isonitrile**, *Inorg. Chim. Acta (Topical Volume Dedicated to B. Lippert)*, **2009**, 362(3), 833–888. DOI: [10.1016/j.ica.2008.02.026](#). IF (impact factor): 2.322. CIT (number of citations): 0
18. [Luzyanin, K. V.](#); Tshovrebov, A. G.; Guedes da Silva, M. F. C.; Haukka, M.; Pombeiro, A. J. L.; Kukushkin, V. Yu. **Metal-mediated [2 + 3] cycloaddition of nitrones to palladium-bound Isonitriles**, *Chem.–Eur. J.*, **2009**, 15, 5969–5978. DOI: [10.1002/chem.200802623](#). IF (impact factor): 5.382. CIT (number of citations): 3
17. [Luzyanin, K. V.](#); Pombeiro, A. J. L.; Haukka, M.; Kukushkin, V. Yu. **Coupling between 3-iminoisoindolin-1-ones and complexed isonitriles as a metal-mediated route to a novel type of palladium and platinum iminocarbene species**, *Organometallics*, **2008**, 27, 5379–5389. DOI: [10.1021/om800517c](#). IF (impact factor): 3.815. CIT (number of citations): 2
16. [Luzyanin, K. V.](#); Gushchin, P. V.; Pombeiro, A. J. L., Haukka, M.; Ovcharenko, V. I.; Kukushkin, V. Yu. **Oxidation of Pt-bound bis-hydroxylamine as a novel route to unexplored dinitrosoalkane ligated species**, *Inorg. Chem.* **2008**, 47, 6919–6930. DOI: [10.1021/ic800481a](#). IF (impact factor): 4.147. CIT (number of citations): 0
15. [Luzyanin, K. V.](#); Galanski, M.; Kukushkin, V. Yu.; Garnovskii, D. A.; Pombeiro, A. J. L. **Regioselective addition of bifunctional oximehydroxamic acid by the hydroxamic group to Pt(IV)-coordinated nitriles**, *Inorg. Chim. Acta (Topical Volume Dedicated to Piero Zanello)*, **2008**, 361, 1738–1743. DOI: [10.1016/j.ica.2006.12.018](#). IF (impact factor): 1.940. CIT (number of citations): 0
14. Gushchin, P. V.; [Luzyanin, K. V.](#); Kopylovich, M. N.; Haukka, M.; Pombeiro, A. J. L.; Kukushkin, V. Yu. **Ni^{II}-Mediated coupling between iminoisoindolinones and nitriles leading to unsymmetrical 1,3,5-triazapentadienato complexes**, *Inorg. Chem.* **2008**, 47, 3088–3094. DOI: [10.1021/ic702131k](#). IF (impact factor): 4.147. CIT (number of citations): 1
13. [Luzyanin, K. V.](#); Kukushkin, V. Yu.; Kopylovich, M. N.; Nazarov, A. A.; Galanski, M.; Pombeiro, A. J. L. **Novel and mild route to phthalocyanines and 3-iminoisoindolin-1-ones via N,N-diethylhydroxylamine-promoted conversion of phthalonitriles and a dramatic solvent-dependence of the reaction**, *Adv. Synth. Catal.* **2008**, 350, 135–142. DOI: [10.1002/adsc.200700261](#). IF (impact factor): 5.619. CIT (number of citations): 1
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8. Luzyanin, K. V. **New types of highly-tunable carbene complexes for green catalytic applications**. ChemForum 2010 Spring Edition – Scientific Series, April 28th, 2010, Lisbon, Portugal.
9. Luzyanin, K. V.; Pombeiro, A. J. L. **Alternative routes to known and novel types of heteroatom-stabilized carbene complexes**, 8th Inorganic Chemistry Conference, October 16th–17th, 2009, Curia, Portugal.
10. Luzyanin, K. V.; Kukushkin, V. Yu.; Pombeiro, A. J. L. **Metal-mediated Transformations of Nitriles and Isocyanides: The Routes to Imines and Heteroatom-Stabilized Carbenes**, at 1st Portuguese Young Chemists Meeting, October, 15th–17th, 2008, Lisbon, Portugal.
11. Luzyanin, K. V.; Kukushkin, V. Yu.; Kuznetsov, M. L.; Galanski, M.; Haukka, M.; Pombeiro, A. J. L. **Platinum-mediated Coupling of Nitriles with Hydroxylamines and 1,2-Hydroxylaminooximes: Combined Synthetic and Mechanistic Overview**, at XXII International Conference on Organometallic Chemistry - 2006, July, 23rd–28th, 2006, Zaragoza, Spain.
12. Luzyanin, K. V.; Kukushkin, N. V.; Keppler, B. K.; Jakupec, M.; Haukka, M.; Pombeiro, A. J. L. **New bishydroxylamino N,N-chelate of platinum(II) vs platinum diammine complexes:**

comparison of antitumor properties, at 9th International Symposium on Metal Ions in Biology and Medicine, May, 21st–24th, 2006, Lisbon, Portugal.

13. Luzyanin, K. V.; Kukushkin, V. Yu.; Ryabov, A. D.; Pombeiro, A. J. L. **Platinum-mediated Nitrile–Hydroxylamine Coupling: First Quantitative Kinetic and Mechanistic Study of the Pt(II) versus Pt(IV) Effect**, at 6th Conference on Inorganic Chemistry, March 31- April 2, 2005, Funchal, Portugal.

POSTER PRESENTATIONS (REPRESENTATIVE WORKS)

14. Silva, T. F. S.; Luzyanin, K. V.; Martins, L. M. D. R. S.; Pombeiro, A. J. L. **Electrochemical behaviour of novel scorpionate and pyrazole dioxovanadium complexes**. XII Iberian Meeting of Electrochemistry, September 8th–11th, 2010, Lisbon, Portugal.

15. Luzyanin, K. V.; Kuznetsov, M. L.; Tskhovrebov, A. G.; Guedes da Silva, M. F. C.; Pombeiro, A. J. L.; Kukushkin, V. Yu. **Heterocarbene-palladium(II) complexes upon [2 + 3] metal-mediated cycloaddition of nitrones to isonitriles**. 24th International Conference on Organometallic Chemistry, July 18th–23rd, 2010, Taipei, Taiwan.

16. Luzyanin, K. V.; Tskhovrebov, A. G.; Haukka, M.; Guedes da Silva, M. F. C.; Pombeiro, A. J. L.; Kukushkin, V. Yu. **A route to novel palladocarbenes based on [2 + 3] cycloaddition of nitrones to palladium-bound isonitriles**. Development of new pharmaceuticals and biologically active species based on naturally occurred compounds/ChemWasteChem – Chemistry and full transformation of wood biomass, June 14th–18th, 2010, St. Petersburg, Russia.

17. Luzyanin, K. V.; Tskhovrebov, A. G.; Guedes da Silva, M. F. C.; Haukka, M.; Kukushkin, V. Yu.; Pombeiro, A. J. L. **Metal-mediated [2+3] cycloaddition of nitrones to palladium-bound isonitriles**, 8th Inorganic Chemistry Conference, October 16th–17th, 2009, Curia, Portugal.

18. Luzyanin, K. V.; Kukushkin, V. Yu.; Pombeiro, A. J. L. **Metal-mediated transformation of organonitriles: an overview of the recent advances**, at XXIII International Conference on Organometallic Chemistry – 2008, July 13rd–18th, 2008, Rennes, France.

19. Luzyanin, K. V.; Kukushkin, V. Yu.; Galanski, M.; Haukka, M.; Pombeiro, A. J. L. **Nucleophilic properties of potentially chelating HON-species: synthetic and mechanistic approach**, at 9th FIGIPAS Meeting in Inorganic Chemistry, July 4th–7th, 2007, Vienna, Austria.

20. Luzyanin, K. V.; Guedes da Silva, M. F. C.; Kukushkin, V. Yu.; Pombeiro, A. J. L. **Platinum-mediated coupling of some HON nucleophiles and nitriles: synthetic and electrochemical studies**, at VIII Iberic Meeting of Electrochemistry and XIII meeting of the Portuguese Electrochemical Society, July 6th–9th, 2005, Covilhã, Portugal.

21. Luzyanin, K. V.; Kukushkin, V. Yu.; Haukka, M.; Garnovski, A. D.; Pombeiro, A. J. L. **Addition of "frozen" by alkylation tautomeric forms of hydroxamic acids to Pt(IV)-bound nitriles**, at 15th Summer School on Coordination Chemistry, 6th–12th, June 2004, Szklarska Poreba, Poland.

FUNDED RESEARCH PROJECTS

FUNDED AND SUPERVISED PROJECTS

PTDC/QUI-QUI/098760/2008 (FCT – Foundation for Science and Technology, Portugal) –
Novel highly-tunable carbene complexes with catalytic, biological and photophysical properties (2010–2012, total funds = 100 kEuros)

Principal Investigator – Konstantin Luzyanin

Developed in collaboration between the Instituto Superior Técnico (host), St. Petersburg State University, Russian Federation (partner), and Institute of Inorganic Chemistry – University of Vienna (partner)

PTDC/QUI-QUI/109846/2009 (FCT – Foundation for Science and Technology, Portugal) –
Chiral metalla-diaminocarbene precatalysts for asymmetric catalytic reactions obtained by the metal-mediated approach

Principal Investigator – Konstantin Luzyanin (2011–2014, total funds = 70 kEuros)

Developed in collaboration between the Instituto Superior Técnico (host), St. Petersburg State University, Russian Federation (partner), and Ecole Polytechnique Federale de Lausanne, Switzerland (partner)

PARTICIPATED PROJECTS

11-03-00262 (Russian Foundation for Basic Research, Russian Federation)

Metal- and Lewis acid-mediated synthesis of novel platinum and boron compounds for cancer therapy (2011–2014)

Principal Investigator – Dr. Nadezhda A. Bokach (St. Petersburg State University, Russian Federation)

Collaborating partner – Konstantin Luzyanin

11-03-12044 (Russian Foundation for Basic Research, Russian Federation)

Molecular design of hybrid metal-containing superengineering polymer materials (2011–2014)

Principal Investigator – Prof. Vadim Yu. Kukushkin (St. Petersburg State University, Russian Federation)

Collaborating partner – Konstantin Luzyanin

09-03-00065 (Russian Foundation for Basic Research, Russian Federation)

Coupling of metalated isonitrile and nitrile substrates with nitrogen-donor nucleophiles (2009–2011)

Principal Investigator – Prof. Vadim Yu. Kukushkin (St. Petersburg State University, Russian Federation)

Collaborating partner – Konstantin Luzyanin

09-03-12173 (Russian Foundation for Basic Research, Russian Federation)

Novel phosphorescent platinum group metal complexes on nanostructured surfaces and in polymer matrixes (2009–2011)

Principal Investigator – Prof. Vadim Yu. Kukushkin (St. Petersburg State University, Russian Federation)

Collaborating partner – Konstantin Luzyanin

CLOSED PROJECTS

**POCTI/QUI/43415/2001 (FCT – Foundation for Science and Technology, Portugal) –
Metal-based synthons with pharmacological significance**

Member of Team – Konstantin Luzyanin (2003–2007, total funds = 100 kEuros)

REFERENCES

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