CURRICULUM VITAE

YURY KOLEN'KO

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Name	Yury Kolen'ko
Born	05.05.1979 in Village Korzhovka-Golubovka, Klintsovskii district, Bryansk region
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Scientific interests	Materials chemistry and physics; solid state chemistry; nanoscience and nanotechnology; hydrothermal (solvothermal) synthesis, 1D nanostructures; supercritical synthesis; hybrid materials; photocatalysis, high pressure research.

Education:

November 2001 – December 2004		
Ph.D., Chemistry	MSU, Department of Materials Science	Ph.D. project: "Synthesis of nanocrystalline materials based on TiO_2 from hydrothermal and supercritical solutions".
September 1996 – June 2001		
B.S./M.S., Chemistry	MSU, Department of Chemistry	Average grade: 4.86 (max=5), Honor Graduate. M.S. project: "Hydrothermal synthesis of nanocrystalline TiO_2".

Research Experience:

November 2001 - December 2004		
Graduate student with Prof. Bulat Churagulov in the laboratory of Prof. Yury Tretyakov	MSU, Department of Materials Science	- hydrothermal synthesis and investigation of nanocrystalline dioxides powders (TiO_2, ZrO_2, HfO_2); - hydrothermal synthesis of 1 D nanostructures (nanotubes, nanorods) based on TiO_2; - synthesis and characterization of TiO_2 and SiO_2 aerogels; - hydrothermal synthesis and investigation of micro- and mesoporous manganese oxides;
November 2002 – August 2003		
Scientific training with Dr. C. Colbeau-Justin Prof. J.-P. Petitet	Université Paris 13 LIMHP – CNRS	- hydrothermal synthesis of nanosized oxides powders (TiO_2, ZnO) for photocatalysis; - supercritical synthesis of TiO_2 aerogels for photocatalysis; - synthesis of TiO_2, ZrO_2 and HfO_2 under high pressure;
September 1996 – June 2001		
Undergraduate student with Prof. Bulat Churagulov in the laboratory of Prof. Yury Tretyakov	MSU, Department of Chemistry	- synthesis by RESS-method and investigation of nanocrystalline oxides powders (Fe_2O_3, ZrO_2); - hydrothermal synthesis and investigation of ultrafine oxides powders (Fe_2O_3, $BaZrO_3$);

Teaching Experience:

December 2003 – June 2004		
Project Supervisor	MSU, Department of Materials Science	Supervising two undergraduate student projects in materials science.
October 2003 – January 2004		
Teaching Assistant	MSU, Department of Chemistry	Inorganic Chemistry course for undergraduate students: chemistry seminar, laboratory and colloquium.
December 2001 – May 2002		
Project Supervisor	MSU, Department of Materials Science	Supervising two undergraduate student projects in inorganic chemistry.
December 2000 – May 2001		
Project Supervisor	MSU, Department of Chemistry	Supervising one undergraduate student project in inorganic chemistry.

Honors, Grants and Awards

1997	1st prize of Russian Mendeleev Society for student's research work in chemistry
1997 - 2000	Grants from International Soros Science Education Program (4 times).
2000 - 2003	Moscow Government Grant (3 times)
2000	1st prize for the outstanding investigation in inorganic chemistry (by Russian Academy of Sciences)
2001	Academician A.V.Legasov's prize for students performed outstanding investigations in materials chemistry
2001	Euler Student Fellowship (by DAAD, Germany)
2002 - 2003	Russian President Grant for Education Abroad
2002 - 2004	INTAS Young NIS Scientist Fellowships Programme 2002, Grant YSF 2002-252
2003	Young Scientist Award of European Materials Research Society (E-MRS)

Skills:

Synthesis
General synthetic procedures, hydrothermal (solvothermal) synthesis, synthesis under high pressure (cubic multi-anvil setup), supercritical synthesis, sol-gel synthesis, microwave synthesis, ceramic synthesis.

Methods
X-ray analysis (Guinier, STOE diffractometers)
Thermal gravimetric analysis
Raman, FTIR and UV-Visible spectroscopy
Adsorption-desorption measurements of N_2 to determine surface area by multipoint Brunauer-Emmett-Teller method (BET) and pore size distribution by Barrett-Joyner-Halenda method (BJH)
Elaboration of results from SEM, TEM and HRTEM

Software
Advanced skills in IBM PC (MS Office, Microcal Origin, Adobe Photoshop, Mozilla, Internet Explorer, basics of HTML), chemical software (WinXpow, PC-PDF database).

Languages
Russian – native
English – fluent
French – basics

Publications:

1. Churagulov B.R., Baranov A.N., Burukhin A.A., Lyubimov S.L., **Kolen'ko Yu.V.** "Parameters of the Isothermal Equation of State of Aqueous Inorganic Electrolyte Solutions and the Nature of Cations and Anions". Russ. J. Inorg. Chem. 42 (1997) 1423.
2. A.A. Burukhin, B.R. Churagulov, N.N. Oleynikov, **Yu.V. Kolen'ko** "Synthesis of Nanostructured Iron Oxide (III) Powders by Rapid Expansion of Supercritical Fluid Solutions". Mat. Res. Soc. Symp. Proc. 520 (1998) 171.
3. **Yu.V. Kolen'ko**, A.A. Burukhin, B.R. Churagulov, N.N. Oleinikov, and A.S. Vanetsev "On the Possibility of Preparing Fine-Particle Barium Zirconate by Hydrothermal Synthesis". Inorg. Mater. 38 (2002) 252.
4. **Yu.V. Kolen'ko**, A.A. Burukhin, B.R. Churagulov, N.N. Oleynikov, V.A. Muhanov "Hydrothermal Synthesis of Nanocrystalline Powders of Various Crystalline Phases of ZrO_2 and TiO_2". Russ. J. Inorg. Chem. 47 (2002) 1609.
5. A.S. Vanetsev, V.K. Ivanov, **Yu.V. Kolen'ko**, N.N. Oleinikov, G.P. Murav'eva, and Yu.D. Tret'yakov "Synthesis of Spherical Oxide Particles in Microwave Hydrolysis of Zr(IV), Ce(IV), and Ni(II) Salt Solutions". Dokl. Chem. 385 (2002) 175.
6. A.B. Antipov, A.N. Grigor'ev, **Yu.V. Kolen'ko**, and A.R. Kaul' "Tunneling Magnetoresistance of $La_{0.7}Sr_{0.3}MnO_3$ Ceramics Obtained by Complexonate Homogenization". Dokl. Chem. 392 (2003) 246.
7. **Yury V. Kolen'ko**, Alexander A. Burukhin, Bulat R. Churagulov, Nikolai N. Oleynikov "Synthesis of nanocrystalline TiO_2 powders from aqueous $TiOSO_4$ solutions under hydrothermal conditions". Mater. Lett. 57 (2003) 1124.
8. **Yu.V. Kolen'ko**, V.D. Maximov, A.A. Burukhin, V.A. Muhanov and B.R. Churagulov "Synthesis of ZrO_2 and TiO_2 nanocrystalline powders by hydrothermal process". Mater. Sci. Engin. C. 23 (2003) 1033.
9. Pavel E. Meskin, **Yury V. Kolenko**, Alexander E. Baranchikov, Vladimir K. Ivanov, Bulat R. Churagulov, Nikolay N. Oleynikov "Synthesis of Ultrafine Oxide Powders by Hydrothermal-ultrasonic Method". Mat. Res. Soc. Symp. Proc. 788 (2004) L8.12.1.
10. D.S. Torhov, P.E. Meskin, **Yu.V. Kolen'ko**, V.A. Ketsko, A.A. Burukhin, B.R. Churagulov, N.N. Oleynikov "Reactivity of Nanocrystalline TiO_2 (Anatase and Rutile) Synthesized under Hydrothermal Conditions". Dokl. Chem. 394 (2004) 36.
11. A.A. Eliseev, K.S. Napolskii, I.V. Kolesnik, **Yu.V. Kolenko**, A.V. Lukashin, P. Goernert, Yu.D. Tretyakov "Mesoporous aluminosilicates as a host and reactor for preparation of ordered metal nanowires". In: Frontiers in molecular science and technology of nanocarbon, nanosilicon and biopolymer integrated nanosystems. E. Buzaneva and P. Scharff (eds.). NATO Science Series II: Mathematics, Physics and Chemistry, Kluwer Academic Publishers, Netherlands, 2004, pp. 109-122.
12. **Yury V. Kolen'ko**, Victor D. Maximov, Alexei V. Garshev, Pavel E. Meskin, Nikolai N. Oleynikov, Bulat R. Churagulov "Hydrothermal synthesis of nanocrystalline and mesoporous titania from aqueous complex titanyl oxalate acid solutions". Chem. Phys. Lett. 388 (2004) 411.
13. **Yu.V. Kolen'ko**, B.R. Churagulov, M. Kunst, L. Mazerolles and C. Colbeau-Justin "Photocatalytic properties of titania powders prepared by hydrothermal method". Appl. Catal. B: Environ. 54 (2004) 51.
14. **Yu.V. Kolen'ko**, V.D. Maksimov, A.V. Garshev, V.A. Mukhanov, N.N. Oleynikov and B.R. Churagulov "Physicochemical Properties of Nanocrystalline Zirconia Hydrothermally Synthesized from Zirconyl Chloride and Zirconyl Nitrate Aqueous Solutions". Russ. J. Inorg. Chem. 49 (2004) 1133.
15. **Yu.V. Kolen'ko**, A.A. Burukhin, B.R. Churagulov and N.N. Oleinikov "Phase Composition of Nanocrystalline Titania Synthesized under Hydrothermal Conditions from Different Titanyl Compounds". Inorg. Mater. 40 (2004) 822.
16. **Yu.V. Kolen'ko**, A.V. Garshev, B.R. Churagulov, P. Portes, S. Boujday and C. Colbeau-Justin "Photocatalytical activity of sol-gel derived titania converted into nanocrystalline powders by supercritical drying". J. Photoch. Photobio. A 170 (2005). *In press.*
17. A.I. Gavrilov, A.V. Garshev, K.A. Kovnir, B.R. Churagulov, **Yu.V. Kolen'ko**, Yu.D. Tretyakov "Hydrothermal synthesis of one-dimensional (1D) nanostructures of Na_xTiO_2". Russ. Chem. Bull., 54 (2005). *In press.*
18. O.V. Sinitsina, A.G. Veresov, E.S. Kovaleva, **Yu.V. Kolen'ko**, V.I. Putlayev, Yu.D. Tretyakov "Synthesis of hydroxyapatite through hydrolysis of α- $Ca_3(PO_4)_2$". Russ. Chem. Bull., 54 (2005). *In press.*

Web: http://www.inorg.chem.msu.ru/matsci/hydrothermal/Aticles_eng.html

Presentations (conferences and workshops):

1. **Kolen'ko Yu.V.**, Burukhin A.A., Churagulov B.R., Oleinikov N.N., Grinblat A.I. "Synthesis of ultrafine oxide materials by rapid expansion of supercritical fluid solutions" // MSU-HTSC V, (24-29 March 1998, Moscow) Russia. Book of Abstracts, p. S-65.
2. **Yu.V. Kolen'ko**, A.A. Burukhin, B.R. Churagulov, N.N. Oleynikov "Synthesis of Nanostructured Iron Oxide (III) Powders by Rapid Expansion of Supercritical Fluid Solutions" // MRS Spring meeting "High-temperature superconductors and novel inorganic materials engineering" (13-17 April 1998, San Francisco) USA. Book of Abstracts, p. 275.
3. **Yu.V. Kolen'ko**, A.A. Burukhin, B.R. Churagulov, N.N. Oleynikov, A.V. Knot'ko "Preparation of Nanoncrystalline Zirconia powders From Hydrothermal and Supercritical Aqueous Solutions" // 7th European Conference on Solid State Chemistry (15-18 September 1999, Madrid) Spain. Book of Abstracts, p. 17.
4. **Yu.V. Kolen'ko**, A.A. Burukhin, B.R. Churagulov, N.N. Oleynikov, T. Egorova "Formation of nanocrystalline titania and zirconia under hydrothermal conditions" // 8th European Conference on Solid State Chemistry (4-7 July 2001, Oslo) Norway. Book of Abstract, Part II, P 074.
5. **Yu.V. Kolen'ko**, A.A. Burukhin, B.R. Churagulov, Yu.D. Tretyakov "Control for morphology and crystallite size of ultrafine powders prepared under hydrothermal condition" // 5th Steinfurter Keramik-Seminar (28.11-01.12 2001, Steinfurt) Germany. Book of Abstract, P-VII.
6. **Yury V. Kolen'ko**, Alexander A. Burukhin, Bulat R. Churagulov, Nikolai N. Oleynikov and Pavel E. Meskin "Physico-chemical properties of nanocrystalline TiO_2 powders prepared under hydrothermal conditions" // 7th International Conference on Nanometer-scale Science and Technology (24-28 June 2002, Malmo) Sweden. Book of Abstracts, p. 77.
7. Alexander Burukhin, **Yury Kolen'ko**, Bulat Churagulov, Nikolai Oleynikov "Control for morphology and crystallite size of ultrafine powders prepared under hydrothermal condition" // Fifth International Conference on Solvothermal Reactions (ICSTR) (July 22-26, 2002, East Brunswick) USA. Book of Abstracts, pp. 345-346.
8. **Yu.V. Kolen'ko**, A.A. Burukhin, B.R. Churagulov, V.A. Muhanov "Hydrothermal synthesis of nanocrystalline powders of various ZrO_2 and TiO_2 forms" // E-MRS 2003 Spring Meeting (June 10-13, 2003, Strasbourg) France. Book of Abstracts, A/PII-29.
9. Meskin P.E., **Kolen'ko Yu.V.**, Churagulov B.R. Oleynikov N.N. "Hydrothermal-ultrasonic synthesis of ultrafine oxide powders" // 9th European Conference on Solid State Chemistry (September 3-6, 2003, Stuttgart) Germany. Book of Abstracts, p. 112.
10. Eliseev A.A., Napolskii K.S., Kolesnik I.V., **Kolen'ko Yu.V.**, Lukashin A.V., Tretyakov Yu.D. "Mesoporous alumosilicates as one-dimensional solid state nanoreactors" // 9th European Conference on Solid State Chemistry (September 3-6, 2003, Stuttgart) Germany. Book of Abstracts, L 32.
11. Meskin Pavel, Burukhin Alexander, **Kolen'ko Yury**, Baranchikov Alexander, Churagulov Bulat, Oleynikov Nikolai "Synthesis of ultrafine oxide powders by hydrothermal-ultrasonic method" // 2003 MRS Full Meeting "Symposium L: Continuous Nanophase and Nanostructured Materials" (Desember 3-5, 2003, Boston) USA. Book of Abstracts, L 8.12.
12. **Yu.V. Kolen'ko**, B.R. Churagulov, M. Kunst and C. Colbeau-Justin "Photocatalytic properties of nanocrystalline TiO_2 powders prepared by sol-gel method followed by supercritical drying" // E-MRS 2004 Spring Meeting (May 24-28, 2004, Strasbourg) France. Book of Abstracts, G/PII.28.
13. S. Boujday, **Yu.V. Kolen'ko**, M. Kunst and C. Colbeau-Justin "Photocatalytic properties of titania powders prepared by sol-gel method followed by supercritical drying in CO_2 or isopropanol" // 15th International Conference on Photochemical Conversion and Storage of Solar Energy (July 4-9, 2004, Paris) France. Book of Abstracts, W6-O-21.
14. Souhir Boujday, **Yury V. Kolen'ko**, Marinus Kunst and Christophe Colbeau-Justin "Correlating charge-carrier lifetimes to the photocatalytic activities of the systems ZnO supported on nanosized TiO_2" // 13th International Congress on Catalysis (July 11-16, 2004, Paris) France. Book of Abstracts, P3-076.
15. **Yu.V. Kolen'ko**, A.I. Gavrilov, A.V. Garshev, B.R. Churagulov "Formation of titanium dioxide nanotubes and nanorods under hydrothermal condition" // Sixth International Conference on Solvothermal Reactions (ICSTR-6) (August 24-27, 2004), Mysore, India. Book of Abstracts, Or-19, p. 57.
16. **Yury V. Kolen'ko**, Victor D. Maximov, Bulat R. Churagulov and Nikolai N. Oleynikov "Mechanism of nanocrystalline ZrO_2 crystallization from $ZrO(NO_3)_2$ and $ZrOCl_2$ aqueous solutions under hydrothermal conditions" // Sixth International Conference on Solvothermal Reactions (ICSTR-6) (August 24-27, 2004), Mysore, India. Book of Abstracts, Or-20, p. 58.
17. **Yury V. Kolen'ko**, C. Colbeau-Justin and Bulat R. Churagulov "Photocatalytic properties of titania powders prepared by hydrothermal method" // Sixth International Conference on Solvothermal Reactions (ICSTR-6) (August 24-27, 2004), Mysore, India. Book of Abstracts, Or-45, p. 83.