# *CURRICULUM VITAE*

# Yuri Zhukovskii (Jurijs Žukovskis)

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|  | SCIENTIFIC DEGREES:  **Ph.D. in Chemistry**  DATE AND PLACE OF BIRTH:  **February 2, 1949, Riga, Latvia**  ADDRESS: **Institute of Solid State Physics,**  **University of Latvia,** **8 Kengaraga Str., LV-1063 Riga, Latvia**  PHONE: 371-67187480 (office), 371-67450972 (home), 371- 28824271 (mob.)  FAX: +371-6713-2778  E-MAIL: [quantzh@latnet.lv](mailto:quantzh@latnet.lv) |

**MAIN RESEARCH INTERESTS:**

Physics and Chemistry of Crystalline Solids,

Surface Science, Adsorption and Surface Reactivity,

Physics and Chemistry of Nanostructures,

Quantum Chemistry,

Computational Materials Science

**EDUCATION**

* *1966-75.* **B.S. + M.S. degrees**: Department of Physics and Mathematics, the University of Latvia, Riga, Latvia.
* *1993.* **Ph.D. degree (Dr. Chem.)**:  Institute of Inorganic Chemistry, Latvian Academy of Sciences, Latvia, and Institute of Physics, St. Petersburg State University, Russia. Title of the Thesis: "Quantum-chemical study of water chemisorption on aluminum surface".

**ACADEMIC AND PROFESSIONAL EXPERIENCE, SCIENTIFIC VISITS**

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| *•* ***08.1975-08.1977.*     Teacher of physics and mathematics, 67 Secondary School in** **Riga**, **Latvia** |
| * *09.1977-04.1980;*     Engineer, Institute of Inorganic Chemistry, Latvian Academy of Sciences, **Riga** |
| *05.1980-06.1986;*     Junior research associate, at the same Institute, Riga - **Salaspils**, |
| *07.1986-12.1993.*     Research associate, at the same Institute, **Salaspils**, **Latvia** |
| * *10.1988-04.1989.*    Visiting scientist, Institute of Physics at **Leningrad** State University, **Russia**. |
| * *01.1994-0219.95.*  Researcher, Institute of Inorganic Chemistry, Latvian Academy of Sciences, **Salaspils**. |
| * *08.1994-07.1995.* Teacher of physics and mathematics, 38 Secondary School in **Riga**, **Latvia** |
| *•* ***Since 03.1995.* Senior researcher, Institute of Solid State Physics at University of Latvia, Riga.** |
| * *09.1995-03.1996;*   Visiting fellow, Laboratory of Physics at Helsinki University of Technology, **Espoo**, |
| *09.1996-01.1997.* **Finland**. |
| * *09.1997-08.1999;* Senior visiting fellow, Centre for Chemical Physics at University of Western Ontario, |
| *10-11.2001.* **London** (Ontario), **Canada**. |
| * *01-02.2000.* Visiting scientist, Centre for Materials Research at University College **London**, **UK**. |
| * *04-05,11.2000;*Visiting scientist, Materials Chemistry, the Ångström Laboratory at **Uppsala**   *06.2001; 10-11.2003.*  University, **Sweden**. |
| * *03-04.2002*; *05.2004;*  Seniorvisiting scientist, Max Planck Institute of Solid State Research, **Stuttgart**, |
| *09.2005; 02;10.2006;*  **Germany**. |
| *09.2007, 02.2008.* |
| * *06.2002; 04.2003;* Visiting scientist, Physics Department at **Osnabrück** University, **Germany**. |
| *06.2004.* |
| * *09,12.2004*;  Visiting scientist, Scientific Research Institute of Chemistry, **St. Petersburg** State |
| *08; 12.2006; 12.2007;* University, **Russia**. |
| *06;12.2008;* |
| *02;09;12.2009;* |
| *02,06.2010;*  *02;06;09;12.2011;*  *02;06;09.2012;*  *02;06.2013;*  *06;10-11.2014;*  *02;06.2015.*  *02;06.2015* |
| * *02-03;06-07.2005;* Stipend holder from National Science Foundation (NSF)for short-term visits (≤ four |
| *04-06.2006;* months annually); Visiting fellow, Materials Research Center at Northwestern |
| *02;05-07.2007;* University, **Evanston** (Illinois), **USA**. |
| *05;09.2008;* |
| *07.2009.* |
| * *10.2005; 05;11.2006;* Visiting scientist, National Laboratory of **Frascati** (National Institute of Nuclear   *10.2007; 11.2008.*  Physics), **Italy.** |
| * *09.2006; 03.07;* Visiting scientist, EC Institute of Transuranum Elements, **Karlsruhe**, **Germany**. |
| *09.2009*. |
| * *03;09.2007;* Visiting scientist, Institute of Applied Mateirals (KIT), **Karlsruhe**, **Germany**. |
| *03;10.2008;* |
| *05;10.2009;*  *05;10.2010;*  *06;10.2011;*  *05;10.2012;*  *06;10.2013;*  *10.2015.* |
| * *03;05.2011;* Visiting scientist, Institute of Nuclear Problems, Belarusian State University, **Minsk**,   *05.2013.* **Belarus** |
| * *11.2011;* Visiting scientist, Institute of General and Inorganic Chemistry, Russian Academy of   *11.2012;* Sciences, **Moscow, Russia**  *09.2014;*  *10.2016.* |
| *•* ***Since 02.2012.*** **Head of Laboratory, Institute of Solid State Physics at University of Latvia, Riga** |

**FELLOWSHIPS**

1995-1997. Two Fellowships for six months; Centre for International Mobility (CIMO), Helsinki University of Technology, Espoo (**Finland**).

1997-1999. Two-year Senior Fellowship; Centre for Chemical Physics at University of Western Ontario, London (ON, **Canada**).

2005-2007. Three-year Fellowship for short-term visits (≤ four months annually) granted by National Science Foundation (USA); Materials Research Scientific and Engineering Center (MRSEC) at Northwestern University, Evanston (IL, **USA**).

**INTERNATIONAL SCIENTIFIC EXPERTISE**

2006-2014EUROATOM-LatviaFusionProject,inclosecollaborationwithscientificgroupsfrom **Germany**, **Greece, Finland** and **Romania** (executive for “Materials Modeling” task in Latvian partner team);

2006-2010 EUROATOM ACTINET networking Project with **German** partners on Nuclear Fuels (participant).

2008-2011 EC Framework 7 Project on Nanoscale ICT Devices and Systems CATHERINE (Carbon nAnotube Technology for High-speed nExt-geneRation nanoInterconNEcts), in close collaboration with 10 partner scientific groups from **Italy, France, Netherlands, Sweden** and **Romania** (coordinator in charge for realization of Latvian partner team’s part of scientific project as well as a member of Advisory Board for CATHERINE project);

2008-2011 EC Framework 7 Project on Advanced Nuclear Fuels *F*-BRIDGE (Basic Research for Innovative *F*uel Design for GEneration IV systems), in close collaboration with 6 partner scientific groups from **France**, **Germany**, and **Czech Republic** (participant);

2011-2014 FP 7 Marie Curie CACOMEL Project (Nano-carbon based components and materials for high frequency electronics), in collaboration with scientific groups from **Germany, Italy,** **Finland, Russia**, and **Belarus*’*** (coordinator of Latvian partner team);

Since 2015EUROFUSION Project, inclosecollaborationwithseveralscientificgroupsfrom **Germany**, **Estonia, Hungary, Spain** and **Sweden** (executive for “Enabling Research” and “WP Mat - Materials Modeling” tasks in Latvian partner teams);

Since 2016 ERA.Net RUS Plus Project WATERSPLIT devoted to simulations on photocatalytic abilities of semiconductor nanostructures, in close collaboration with scientific groups from **Germany** and **Russia** (coordinator of Project).

**TEACHING EXPERIENCE**

For several years (beginning with ***1975***), I had worked as a teacher of physics and mathematics in a few Secondary Schools of Riga. During my work at the Institute of Inorganic Chemistry, Latvian Academy of Science (1978-1994), I prepared and periodically gave a cycle of lectures on Computational Quantum Chemistry for young researchers (PhD and MS students) as well as for winners of Latvian Olympiads in Physics and Chemistry at Summer Schools organized in a number of Latvian peripheral cities and settlements (Mazsalaca, Kuldiga, etc.). I supervised several MS and PhD Theses. Beginning with ***2000*** a number of Masters of Science from the Transport and Telecommunication Institute, Riga, were trained by me for further PhD studentships at Osnabrück University and Max Planck Institute for Solid State Research, Stuttgart (both Germany), according to the programs of *ab initio* simulations on various advanced materials and processes. During several years, three of them successfully defended PhD Theses in Germany (S. Piskunov - 2003, D. Gryaznov - 2006, and Yu. Mastrikov - 2008). My PhD student D. Bocharov (involved in project EUROATOM ACTINET) successfully defended his Thesis at the University of Latvia in 2012 while my second PhD student A. Gopejenko (involved in EUROATOM-LatviaFusionProject) completes his Thesis to be defended at the University of Latvia. My third PhD student A. Platonenko (involved in EUROFUSION Project, subproject WP Mat - Materials Modeling) has begun his studentship since 2014.

**LANGUAGE SKILLS:**  English, Russian, Latvian.

**PUBLICATIONS**

**Review article:**

**Yu.F. Zhukovskii**, E.A. Kotomin, R.A. Evarestov, and D.E. Ellis, “Periodic models in quantum chemical simulations of *F* centers in crystalline metal oxides”. - *Intern. J. Quant. Chem.*, 2007, 107, N 14, p. 2956-2985.

**Chapters in book:**

1. **Yu.F. Zhukovskii,** S. Piskunov, O. Lisovski, A. Chesnokov, and D. Bocharov, First Principles Evaluation of Photocatalytic Suitability for TiO2-Based Nanotubes. – Chapter 4 in a book: *Semiconductor Photocatalysis - Materials, Mechanisms and Applications* (Ed. Wenbin Cao, InTech Open Access Publisher, Rijeka, Croatia), **2016**, p. 105-133.

2. **Yu.F. Zhukovskii**, Boron and Metal Diborides. – Chapter 4 in book: *R.A. Evarestov, Theoretical Modeling of Inorganic Nanostructures* (Springer-Verlag, Berlin, Heidelberg), **2015**, p. 217-251.

3. **Yu.F. Zhukovskii**, Group IV Semiconductors. – Chapter 5 in book: *R.A. Evarestov, Theoretical Modeling of Inorganic Nanostructures* (Springer-Verlag, Berlin, Heidelberg), **2015**, p. 253-346.

4. **Yu.F. Zhukovskii**, Nitrides of Boron and Group III Metals. – Chapter 6 in book: *R.A. Evarestov, Theoretical Modeling of Inorganic Nanostructures* (Springer-Verlag, Berlin, Heidelberg), **2015**, p. 347-427

5. **Yu.F. Zhukovskii**, D. Bocharov, D. Gryaznov, and E.A. Kotomin, First Principles Simulations on Surface Properties and Oxidation of Nitride Nuclear Fuels. - Chapter 5 in book: *Advances in Nuclear Fuel* (Ed. Shripad T. Revankar, InTech Open Access Publisher, Rijeka, Croatia), **2012**, p. 95-122.

**Papers**: **159** scientificpapers as well as **290** reports and posters at international scientific symposia, meetings, conferences and workshops.

Citations: **1454**, Hirsch index - **21**.

**Last five scientific papers:**

1. **Yu.F. Zhukovskii**, A. Platonenko, S. Piskunov, and E.A. Kotomin, *Ab initio* simulations on migration paths of interstitial oxygen in corundum. – *Nucl. Instr. Meth. Phys. Res. B*, **2016**, Vol. 374, N 1, p. 29–34.

2. O. Lisovski, A. Chesnokov, S. Piskunov, D. Bocharov, **Yu.F. Zhukovskii**, M. Wessel, and E. Spohr, *Ab initio* calculations of doped TiO2 anatase (101) nanotubes for photocatalytical water splitting applications. – *Mater. Sci. Semicond. Process.* **2016**, Vol. 42, N 1, p. 138-141.

3. S. Piskunov, O. Lisovski, J. Begens, D. Bocharov, **Yu.F. Zhukovskii**, M. Wessel, and E. Spohr, C-, N-, S-, and Fe-doped TiO2 and SrTiO3 nanotubes for visible-light-driven photocatalytic water splitting: Prediction from first principles. – *J. Phys. Chem. C*, **2015**, Vol. 119, N 32, p. 18686−18696.

4. P.N. D’yachkov, V.A. Zaluev, S. Piskunov, and **Yu.F. Zhukovskii**, Comparative analysis of the electronic structures of mono- and bi-atomic chains of IV, III–V and II–V group elements calculated using the DFT LCAO and LACW methods. – *Royal Soc. Chem. Advances*, **2015**, Vol. 5, N 111, p. 91751–91759.

5. S. Bellucci, F. Micciulla, Yu.N. Shunin, **Yu.F. Zhukovskii**, V.I. Gopeyenko, N. Burlutskaya, T. Lobanova-Shunina, and A. Capobianchi, Memory nanodevices based on carbon nanotube-Fe-Pt interconnects: Electromagnetic simulations and magnetically stimulated nanotube growth. – *J. Mater. Sci. Eng. B*, **2015**, Vol. 5, NN 3-4, p. 120-134.

**80 papers were published in the most prestigious scientific journals with a high impact factor (IF > 1)**

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| Title of journal | Number of  publications | IF (2015) | Title of journal | Number of  publications | IF (2015) |
| *Phys. Rev. Letters* | 3 | 7.5 | *J. Power Sources* | 1 | 6.2 |
| *J. Phys. Chem. C* | 6 | 4.8 | *Phys. Chem. Chem. Phys.* | 1 | 4.5 |
| *Royal Soc. Chem. Advances* | 2 | 3.8 | *Phys. Rev. B* | 5 | 3.7 |
| *J. Comput. Chem.* | 1 | 3.6 | *J. Phys. Chem. B* | 1 | 3.3 |
| *Mater. Sci. Eng. C* | 2 | 3.1 | *Int. J. Mol. Sci.* | 1 | 2.9 |
| *Appl. Surf. Sci.* | 1 | 2.7 | *J. Phys.: Cond. Matter* | 5 | 2.4 |
| *Superlatt. Microstruct.* | 1 | 2.1 | *Comput. Mater. Sci.* | 4 | 2.1 |
| *Physica E* | 1 | 2.0 | *Chem. Phys. Letters* | 2 | 1.9 |
| *J. Nucl. Mater.* | 5 | 1.9 | *J. Phys. Chem. Solids* | 2 | 1.9 |
| *Solid State Commun.* | 2 | 1.9 | *Surf. Sci.* | 10 | 1.9 |
| *Vacuum* | 1 | 1.9 | *Solid State Sci.* | 1 | 1.8 |
| *Thin Solid Films* | 2 | 1.8 | *J. Nanophoton.* | 1 | 1.7 |
| *J. Mol. Struct.* | 2 | 1.6 | *phys. status solidi (b)* | 4 | 1.5 |
| *Eur. Phys. J. B* | 1 | 1.4 | *Int. J. Quant. Chem* | 2 | 1.4 |
| *THEOCHEM* | 1 | 1.4 | *Microelectronic Eng.* | 1 | 1.2 |
| *Nucl. Instr. Meth. B* | 6 | 1.1 | *Phys. Scripta* | 2 | 1.1 |

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