CURRICULUM VITAE

EUGENE KOTOMIN

PERSONAL DETAILS

Name	Eugene KOTOMIN (Jevgenijs Kotomins), PhD, Dr.Sc. in Physics, Dr.habil.phys., Prof., full member of the Latvian Academy of Sciences
Date of birth	September 20, 1949, Vilnius, Lithuanian Republic
Address	Institute of Solid State Physics, University of Latvia, 8 Kengaraga Str., LV-1063 RIGA, Latvia
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E-mail	kotomin@latnet.lv, http://www.cfi.lu.lv/teor/index.html, www.lza.lv/scientists/kotomine.htm
Marital Status	Married, two children

Total citation: 11.000; H-index (WoS): 53;
530 research papers (2 papers cited more than 200 times, 10 papers cited more than 100 times total 12 review articles, author/editor of 17 books and book chapters, 600 conference

Abstracts at conferences

According to a leading academic platform for researchers "research.com" release in 2023, E.Kotomin have been ranked Nr. 1 in Latvia in the field of (theoretical) chemistry https://research.com/scien rankings/chemistry/lv

EDUCATION

1966-71	BS and MS degrees: Department of Physics, Latvian State University (LSU), 19 Rainis Blvd., Riga LV-1058, Latvia
1973-74	Visiting Fellow, Department of Quantum Chemistry, Leningrad University. Advisor: Prof. R.A. Evarestov
1975	PhD degree: Institute of Physics, The Latvian Academy of Sciences. Advisor: Prof. I. Tale; **Title of Thesis**: "Role of electron tunnelling in radiation-induced defect accumulation and in diffusion-controlled reactions of defects"
1988	Dr.Sc. (Soviet Doctor of Sciences) degree in Solid State Physics; **Title of Thesis**: "Theory of defect accumulation and recombination in ionic crystals controlled by electron tunnelling".
1992	Dr.habil. in Physics, University of Latvia, Riga

ACADEMIC AND PROFESSIONAL EXPERIENCE

1971-74	Engineer and Research Associate, Institute of Solid State Physics, Latvian State University, 8 Kengaraga Str., LV-1063, Riga, Latvia
1975-79	Assistant Professor, Dept. of Semiconductor Physics, Latvian State University
1980-85	Scientist and Senior Scientist at the Institute of Solid State Physics
1986	Senior Visiting Fellow, Dept. of Theoretical Chemistry, Turin University, Italy. Advisor: Prof. C. Pisani
1987-91	General Physics Lecturer and Associate Professor, Dept. of Semiconductor Physics, Latvian State University
1988-present	Head of the laboratory for Theoretical Physics and Computer Modelling; Senior Scientist at the Institute of Solid State Physics, the University of Latvia, Riga
1996-2002	Full Professor at the University of Latvia

PROFESSIONAL ACTIVITIES, FELLOWSHIPS

10.2011	Full Member of the Latvian Academy of Sciences
11.2009	Corresponding Member of the Latvian Academy of Sciences

05-06.1989	Invited Professor, Inorganic Chemistry Dept., University of Turin, Italy
05.1990, 03.1991	Visiting Scientist, University of Bayreuth, Germany
12.1990	Visiting Scientist, Ben-Gurion University, Israel
09.91-02.1992; 03.1999	CCP Fellow at the University of Western Ontario, Canada
10-11.1992	Visiting Scientist, Max-Planck-Institut (MPI) für Metallforschung, Stuttgart
05-06.1993	NUFFIC Fellow, ECN Institute, The Netherlands
11.1993-06.1994	DFG Fellowship at the MPI für Metallforschung, Stuttgart
09.1994-09.1995	Visiting Professor at University of Aarhus, Denmark
07.1996-09.1996	Visiting Scientists at University of Aarhus
09.1997	Visiting Scientist at University of Madrid, Spain, and Western Ontario University, London, Canada
03.1998	Visiting Professor at Tsukuba Science City, Japan
08.1998-08.1999	DFG Visiting Professor at Universität Osnabrück, Germany
09.1999-03.2000	Visiting Scientist at Max-Planck-Institut für Festkörperforschung, Stuttgart, Germany
04.2000-03.2001	DAAD Visiting Professor at Universität Osnabrück, Germany
04.2001-08.2005	Visiting Scientist at Max-Planck-Institut für Festkörperforschung, Stuttgart, Germany
08.2005-07.2007	Visiting Scientist at EC Institute for Transuranium Elements, Karlsruhe, Germany
08.2007-12.2013	Visiting Scientist at Max-Planck-Institut für Festkörperforschung, Stuttgart, Germany
2005-2020	External evaluator of the DOE, NSF and PNNL research projects in the USA, EC ERA-NET, Skolkovo, Russia, Science Foundation, Ireland, PAZY foundation, Israel, DFG, Germany

Member of the organizing committees of the following conferences:

- Quantum Chemistry of Solids; Riga 1985, 1990;
- Radiation Effects in Insulators: (REI-8), Catania, 1995; (REI-9), Tennessee, 1997; (REI-10), Jena, 1999; (REI-11),Lisbon, 2001 ; (REI-12), Brazil, 2003 ; (REI-14), Caen, 2007;

(REI-15), Padova, 2009; (REI-16) Beijing, 2011; Helsinki 2013 (REI-17); Versaille 2017 (REI-19); Astana 2019 (REI-20)

- European Materials Research Society Meeting, Strasburg, 1995; 2015, 2018; Warsaw, 2012 and 2017; Lille, 2014-2016;
- NATO Advanced Research Workshop on Defects and Surface-Induced Effects in Advanced Perovskites, Riga, August 1999;
- International workshop on Microstructure of Oxide Materials, Osnabrück, June 2000;
- co-director of the NATO school on Computational Materials Science, IlCicco, Italy, September 2001;
- co-director of the NATO school on Radiation Effects in Solids, Erice, Italy, July 2004
- co-organizer of the International workshop on Computational Electrochemistry, Santorini, Greece, September 2004
- co-organizer of the International workshop on First Principles Calculations of Nuclear Fuels, Karlsruhe, Germany, March 2007
- organizer of the International workshop on Ceramic Membranes for Energetics, Riga, Latvia, April 2011
- organizer of the International workshop on Defects in Redusible Oxides (COST Action CM 1104), Riga, Latvia, April 2014

50 Invited talks at the following international conferences, including:

- Radiation Effects in Insulators (REI), Nagoya, 1994 and REI-9, Knoxville, 1997; Caen 2007, REI-14
- NATO Advanced Research Workshop on Computer Modelling of Processes in Solids, Wroclaw, 1996
- Defects in Insulating Materials (ICDIM), Winston-Salem, 1996, Johannesburg, 2000; Santa Fe, 2012
- 2nd International Conference on Excitonic Processes in Condensed Matter, Kurort Gohrisch, Germany, 1996
- Advanced Optical Materials and Devices, Riga, Latvia, 1996
- 1st ABS International Symposium on Metal Oxide Surfaces, Tsukuba, Japan, 1998
- 12 Nordic Symposium on Computer Simulations, Finland, 1998
- European Materials Research Society Meetings, Strasburg, 1995, 1999, 2019
- NATO ARW on Atomistic Aspects of Epitaxial Growth, Corfu, 2001

- 10th International Ceramic Congress, Florence, 2002
- Electronic Structure: Principles and Applications (ESPA-2004), Valladolid, Spain, 15-17 September 2004
- 2 lectures at NATO school on Radiation Physics, Erice, Italy, July 2004
- XNO workshop on nuclear fuels modelling, Tokyo, February 2008
- Baltic Conferences on Functional Materials and Nanotechnology, Riga, 2008, 2009, 2010, 2011
- 5. Baltic Conference on Electrochemistry, Tartu, May 2008
- International Workshop on Ab initio simulations of crystalline solids, Torino, Italy, September 2008
- International Workshop on Fundamentals of Li-based Batteries, Tegersee, Germany, November 2008
- Materials Science and Technology, Pittsburg, USA, October 2009, 2014, Columbus 2011
- 14th International Conference on Radiation Physics and Chemistry of Inorganic Materials, Astana, Kazakhstan, October 2009
- International Symposia on Systems with Fast Ionic Transport (ISSFIT-9,10), Riga, June 2010, Moscow 2012, Kaunas 2016
- CECAM workshop on Actinides: Correlated Electrons and Nuclear Materials, Manchester, UK, June 2010
- Summer school on Ceramic membranes for green chemical production and clean power generation, Valencia, September 2010
- CRYSTAL school on ab initio materials calculations, Torino, Italy, September 2011
- International Conference on Defects in Insulating Materials (ICDIM) Santa Fe, June 2012
- Materials Research Society Meeting, San Francisco, 2013
- International workshop on Electrochemistry, Monterey, USA, June 2014; Ulm 2015
- International School on Electrochemical Energy Conversion and Storage, Stuttgart, 2016
- Schools-conferences on "Atomistic Simulations of Functional Materials" (Moscow, Russia, 2014-2018)
- 232st Electrochemical Society Meeting, New Orleans, USA, 2017
- 21st International Conference on Solid State Ionics, Padua, Italy, 2017

- European Conference on defects in Insulating Materials (EURODIM), (Bydgoszcz, Poland, 8-13 July 2018).
- The 18th Israel Materials Engineering Conference IMEC-18 (Dead Sea, Israel, February 2018).
- American Ceramic Society meeting (Orlando, January 2020)

  Member of the:

  - Full Member of the Latvian Academy of Sciences since 2011
  - American Ceramic Society since 2014
  - Americal Chemical Society since 2020
  - New York Academy of Sciences, 1992-95
  - American Physical Society, 1992-95
  - Materials Research Society, 1992-present
  - American Geophysical Union, 1995-present
  - Association of Latvian Scientists, 1991-present
  - Council for Dissertations of Latvian University, 1987-91
  - Editorial Advisory Board of the Journal *Diffusion and Defect Data*

RESEARCH SUPPORT AND AGENCY

1992	International Science Foundation (ISF) grant
1992	NATO collaborative grant on Defects in Oxides
1993, 1994,1997	ISF (Soros) travel grants for International conferences
1994-96	Two-year ISF research grant
1994-96	European Community Human Capital and Mobility (HCM) Network Grant on *Polarons and Bipolarons in New Materials*
1994-96	European Community HCM Network Grant on *Large Scale Computer Simulations of Solids*
1996-98	Volkswagen research grant (Freie Universität Berlin, Germany)
1999-2000	NATO research grant for senior visitors (Aarhus University, Denmark)

1999-2000	British-Latvian UK Royal Society Joint grant (University College London)
1999-2003	Swedish-Latvian Joint research grants with Uppsala University
2001-2004	Networking grant in the framework of the EC Excellence Center for Materials Research and Technology, CAMART
2001-2003	NATO collaborative grant on Defects in Perovskites, Osnabrueck University, Germany
2003-2006	Research grant of German-Israeli Foundation: MPI,Stuttgart– Technion, Israel
2002-2005	Member of the European Network Psi-k2 on Atomistic Materials Design
2005-2007	NSF collaborative grant on Reactivity of Oxide Surfaces with NRSEC Northwestern University, USA
2005-2007; 2010-2012; 2017-2020	Three projects of the German-Israel Foundation (GIF) on new materials for solid oxide fuel cells
2006-2010	Three service contracts on ab initio modelling of nuclear fuels with JRC-ITU, Karlsruhe, Germany
2006-2014	Euratom-Latvia project on modeling of ODS steel formation as reactor materials, Brussels, Belgium
2007-2008	Actinet: EC Euratom Network on He modelling in nuclear fuels
2008-2011	EC FP7 Project F-Bridge on nuclear fuel modelling
2009-2012	EC FP7 Project NASA-OTM on ceramic permeation membrane modelling
2008-2012	ERA-NET project MATERA on materials for resistive switching
2013-2018	EC FP7 Project GREEN-CC on advanced ceramic membranes
2012-2015	EC COST Action CM 1104 on Reducible Oxides
20015-2019	Eurofusion project on Functional optical materials
2014-2018	Russian Science Foundation project 14-43-00052 on large scale advanced materials modelling

2015-2017	Eurofusion Enebling Research Project on X-ray Absorption Spectroscopy and atomic-scale modelling of ODS steels
2016-2019	M-ERA-NET project HarvEnPiez on Innovative nano-materials and architectures for integrated piezoelectric energy harvesting applications
2018-2019	Bilateral Latvia-Ukraine project on perovskite surface reactivity
2019-2024	EC COST Action OC-2018-2-23544 Computational materials sciences for efficient water splitting with nanocrystals from abundant elements
2019-2022	M-ERA-NET project Sun2Chem on Engineering of perovskite photocatalysts for sunlight-driven hydrogen evolution from water splitting

AWARDS

1997 Fridrich Canders' prize in physics of the Latvian Academy of Sciences

Reviewer for more than 40 basic research journals, including Physical Review Letters, Physical Review B and E, Nature Materials, Journal of Nuclear Materials, Nuclear Instruments and Methods B, Solid State Ionics, Surface Science, Physical Chemistry Chemical Physics, Physica Status Solidi, Physica B, J Luminescence, Chemistry of Materials, J Physical Chemistry J Physics: Condensed Matter, Solid State Communications, Chemical Physics, Philos. Magazin, Applied Physics Letters, J. Materials Research, etc.

TEACHING EXPERIENCE

I lectured at undergraduate/graduate levels during five years as Assistant and Associate Professor, and four years as Lecturer at the University of Latvia giving courses in "General Physics", "Quantum Chemistry of Solids", "Theory of Defects in Solids", "Theoretical Characterization of Bulk and Surface Defects in Solids".

As a Visiting Professor, I gave at University of Aarhus in 1995 a PhD course entitled "Static and Dynamic Properties of Defects in Solids" as well as a course on "Defects in Solids" at Osnabrück University in 1998/1999. In 2000-2001, serving as DAAD and DFG invited professor, I gave several courses of lectures in Osnabrück University and later, in 2008, 2009, 2012, 2013, 2014 in Astana Eurasian University (Kazakhstan) on "Computational Methods and Modelling of Advanced Materials".

I have supervised 20 BS theses, 15 MS theses and 8 PhD theses, at the University of Latvia and Max Planck Institute in Stuttgart, Germany.

PUBLICATIONS

Author/co-author of 17 books and chapters, 12 review articles, 460 refereed papers (see attached list of publications).

RESEARCH INTERESTS (in brief)

My recent scientific activities are concerned with the **computational materials science** – interdisciplinary field including condensed matter physics and chemistry, *ab initio* atomic and electronic structure calculations of (mainly oxide) materials, defects therein, quantum chemistry of defective solids, surfaces, and interfaces. In recent years I focused on atomistic understanding of processes at the surfaces of cathodes of solid oxide fuel cells and permeation membranes in order to improve their performance, see e.g. chapter 6 in a book *Computational approaches to energy materials* (eds. A.Walsh, A. Sokol, C.R.A. Catlow, Wiley, 2013).
My research interests include also theory of radiation-induced effects and defects in solids, kinetics of bimolecular reactions with a focus on self-organization phenomena. In cooperation with Prof. V.Kuzovkov, I developed theory of *fluctuation-controlled kinetics of bimolecular chemical reactions* which calls into question the standard criteria generally accepted in synergetics. These results are summarized in our book – E.A. Kotomin and V.N. Kuzovkov, *Modern Aspects of Diffusion- Controlled Reactions*, Elsevier, 1996.

My current research activities are focused on: (i) Functional materials and devices for new energy applications including solid oxide fuel cells (SOFC), Li batteries, sensors; (ii) Nanomaterials and confinement effects in advanced perovskites; (iii) Defects and surface-related processes in advanced complex oxides and nitrides; (iv) Physics and chemistry of actinides and nuclear fuels, new materials for fusion and fission reactors; (v) Radiation physics and chemistry, self-organization in non-equilibrium systems.

In our research I combine analytical methods with large-scale computer modelling based on the first-principles approaches and kinetic Monte Carlo method.

Most of my diverse interests are fueled by international collaboration such as Max Planck Institute, Stuttgart, Germany (Prof. J. Maier, 'Properties of Perovskite Surfaces'), University of Maryland (Prof. M. Kuklja, 'First-principles modeling of Solid Oxide Fuel Cells'), Turin University, Italy (Prof. R. Dovesi, 'LCAO hybrid Calculations of Solids, Surfaces and Interfaces'), Center of Nanotechnology, University Colledge London, UK (Prof. A.L.Shluger, 'Reducible oxide surfaces'), Ben-Gurion University, Israel (Prof. D.Fuks, 'Perovskite solid solutions'), St.Petersburg University, Russia (Prof. R.A. Evarestov, 'Large-scale Parallel Calculations of Defects and Advanced Perovskite Surfaces') and Juelich Research Center, Germany (Prof. R.Waser, Dr R.Dittmann, 'Materials for resistive switching' and Dr W.Meulenberg 'Advanced permeation membranes').

LIST OF REFEREED PAPERS OF E.A. KOTOMIN

Books and book chapters

1. Evarestov R.A., Kotomin E.A., Ermoshkin A.N. *Molecular models of point defects in wide-gap solids.* -Riga: Zinatne, 1983. -287p.

2. Kantorovich L.N., Kotomin E.A., Kuzovkov V.N., Tale I.A., Shluger A.L., Zakis Yu.R. *Models of defect processes in wide-gap solids.* -Riga: Zinatne, 1991. -320p.

3. Kotomin E.A. and Kuzovkov V.N. *Modern Aspects of Diffusion-Controlled Processes: Cooperative Phenomena in Bimolecular Reactions*, North Holland, Elsevier Publ. (vol. **34** in a series of *Comprehensive Chemical Kinetics*),1996.620 p.

4. Catlow C.R.A. and Kotomin E.A. (eds.) Computational Materials Science, IOS press, Amsterdam, Berlin, Oxford,Tokyo, Washington,DC, 2003, 420 pp. (NATO Science series III: Computer and Systems Sciences, vol. 187).

5. Sickafus K. and Kotomin E.A. (eds.). Radiation Effects in Solids, 2006, NATO ASI Science Series II. Physics, Chemistry and Mathematics, Vol. 235.

6. Kuzovkov V.N., Kotomin E.A., Zvejnieks G., Li K.D., Ding T.H., Wang L.M. Void Superlattice Formation in Electron Irradiated Insulating Materials.– Chapter 11 in: Advances in Materials Science Research, vol. 2, 2011, pp. 191-216 (Nova Science Publishers, ed. Maryann C. Wythers).

7. Heifets E., Kotomin E.A., Mastrikov Yu., Piskunov S., and Maier J. Chapter in: Thermodynamics of ABO_3 perovskite surfaces. – In: Thermodynamics-Interaction studies - Solids, liquids and gases (InTech Open Access Publishers), 2011, p. 491-518.

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

9. Zhukovskii Yu.F., Kotomin E.A., Piskunov S., and Bellucci S., CNT arrays grown upon catalytic nickel particles as applied in the nanoelectronic devices: Ab initio simulation of growth mechanism. - Proc. NATO ARW Nanodevices and Nanomaterials for Ecological Security (Eds. Yuri N. Shunin and Arnold E. Kiv; Springer: Dordrecht, 2012), p. 101-114.

10. Gopejenko A., Zhukovskii Yu.F., Vladimirov P.V., Kotomin E.A., and Moeslang A. Interaction between oxygen and yttrium impurity atoms as well as vacancies in fcc iron lattice: Ab initio modeling. - Proc. NATO ARW Nanodevices and Nanomaterials for Ecological Security (Eds. Yuri N. Shunin and Arnold E. Kiv; Springer: Dordrecht, 2012), p. 149-160

11. Kotomin E.A., Merkle R., Mastrikov Yu.A., Kuklja M.M., and Maier J. — Energy Conversion: Solid Oxide Fuel Cells. –First-Principles Modeling of Elementary Processes. Chapter 6 in the book: "Computational Approaches to Energy Materials" (eds. A.Walsch, A.Sokol, C.R.A. Catlow, Wiley, 2013).

12. Sobolev N., Bernas H., Kotomin E.A. and Nordlund K. (eds.) Defect-induced effects in nanomaterials, Proceedings of Symposium L of the Fall EMRS conference (Warsaw, 2012)– Phys. Stat. Solidi B 250, No 4, 2013.

13. Djurabekova F., Kotomin E.A., Ridgway M., Sobolev N. (eds.) Defect-induced effects in nanomaterials, Proceedings of Symposium E of the Spring EMRS conference (Lille, 2014)– Phys. Stat. Solidi C 12, No 1-2, 2015.

14. Costantini J-M., Trautman C., Weber W., Kotomin E.A. (eds.) Basic Research on Ionic Covalent Materials for Nuclear Applications, Proceedings of Symposium G of the Spring EMRS conference (Lille, 2015) – Nucl. Instr. Meth. B 374,1 (2015).

15. Popov A.I., Lushchik A., Kotomin E.A. Low temperature radiation effects in wide gap materials (eds.) – In: Low Temperature Physics (Fizika nizkih temperatur, 2016, v. 42, N 7, pp. 687-688.

16. Arrigoni M., Kotomin E.A., Maier J., Large Scale Modeling of Defects in Advanced Oxides: Oxygen Vacancies in BaZrO3 Crystals. - Chapter in a book: W. Nagel et al. (eds.) High Performance Computing in Science and Engineering, (Springer, Switzerland), 2016, p. 187-198.

17. Kotomin E.A., Sobolev N., Djurabekova F., Zhang Y., Ridgway M. (eds.) Defect-induced effects in nanomaterials, Proceedings of Symposium BB of the Spring EMRS conference (Lille, 2016)– Phys. Stat. Solidi C 13, 697, 2016; Phys. Stat. Solidi B 253, 2091, 2016

18. Sobolev N., Djurabekova F., Kotomin E.A.,. (eds.) Defect-induced effects in nanomaterials, Proceedings of Symposium K of the Spring EMRS conference (Strasburg 2018)– Phys. Stat. Solidi B 256, 1900181, 2018

Review Articles

1. Doktorov A.B., Kotomin E.A. Theory of Tunnelling Recombination of Defects Stimulated by Their Motion. (I). General formalism. -Phys. Stat. Solidi (b), 1982, **114**, No.1, p.9-14.

2. Kotomin E.A., Doktorov A.V. Theory of Tunnelling Recombination of Defects Stimulated by Their Motion. (II). Three Recombination Mechanisms. -Phys. Stat. Solidi (b), 1982, **114**, No.2, p.287-318.

3. Kalnin Yu.H., Kotomin E.A. Radiation-induced aggregation of immobile Frenkel defects in solids. -Probl. of atom. Sci. and techn., Kharkov phys.-techn. Inst., **20**, 1984, p.18-34.

4. Kuzovkov V.N., Kotomin E.A. Kinetics of bimolecular reactions in condensed media. -Rep. on Progr. in Physics, 1988, **51**, No.12, p.1479-1524.

5. Millers D.K., Grigorjeva L.G., Kotomin E.A., Artjushenko V.G. Butvina L.N. Radiation-induced processes in crystals and fibers made of silver halides. Latv.St.Univ. Preprint. 1988. P.70.

6. Vinetsky V.L., Kalnin Yu.R., Kotomin E.A., Ovchinnikov A.A. Radiation-induced Frenkel defect aggregation in solids. -Sov.phys.-uspekhi, 1990, **33**, No.10, p.793-811.

7. Kotomin E.A., Kuzovkov V.A. Phenomenological theory of the recombination and accumulation kinetics of radiation defects in ionic solids. -Rept.Progr.Phys., 1992, **55**, p.2079-2202.

8. Eglitis R., Kotomin E.A., Borstel G. Large scale computer modeling of point defects, polarons and pervoskite solid solutions. - Defects and Diffusion Forum, 2004, **226-228**, p. 169-180.

9. Zhukovskii Yu., Kotomin E.A., Evarestov R.A., Ellis D.E. Periodic Models in Quantum Chemical Simulations of F Centers in Crystalline Metal Oxides. - Int. J. Quantum Chem., 2007, **107**, p.2956-2985.

10. Kotomin E.A. and Popov A.I. The kinetics of radiation-induced point defect aggregation and metallic colloid formation in ionic solids. In: Radiation Effects in Solids, NATO ASI Science Series II. Physics, Chemistry and Mathematics (Eds. K. Sikafus and E.A. Kotomin), Vol. **235**, p. 153-192.

11. Wang L., Merkle R., Mastrikov Yu., Kotomin E.A., Maier J. Oxygen exchange kinetics on solid oxide fuel cell cathode materials-general trends and their mechanistic interpretation. - J. Mater. Res.,2012, **27**, p.2000-2008.

12. Kuklja M.M., Kotomin E.A., Merkle R., Mastrikov Yu.A., and Maier J., Combined theoretical and experimental analysis of processes determining cathode performance in solid oxide fuel cells. - Phys. Chem. Chem. Phys., Perspective, 2013, **15**, p. 5443-5471.

Papers

1974

13. Fabrikant I., Kotomin E.A. Theory of diffusion-controlled tunnelling recombination (I.) -In: Electronic and ionic processes in ionic crystals. Riga: Latv.Univ.press, 1974, **2**, p.78-92.

14. Kotomin E.A. Theory of diffusion-controlled tunnelling recombination. (II.) -In: Electronic and ionic processes in ionic crystals. Riga: Latv.Univ.press, 1974, **2**, p.93-107.

15. Kotomin E.A., Fabrikant I. Theory of diffusion-controlled tunnelling recombination. (I-III.) -In: Electronic and ionic processes in ionic crystals. -Riga: Latv.Univ.press, 1974, **2**, p.78-123.

16. Tale I.A., Millers D.K., Kotomin E.A. A role tunnelling recombination in low-temperature F centre accumulation. -In: Electronic and ionic processes in ionic crystals. Riga: Latv. Univ. press, 1974, **2**, p.43-51.

1975

17. Kotomin E.A., Fabrikant I.I. Theory of Diffusion-Limited Recombination of Donor-Acceptor Pairs. -J.Luminescence, 1975, **9**, No.6, p.502-513.

18. Ermoshkin A.N., Kotomin E.A., Evarestov R.A. Molecular cluster approach to magnesium and calcium oxide crystals. -Phys. Stat. Solidi (b), 1975, **72**, p.787-798.

19. Millers D.K., Tale I.A., Kotomin E.A. General approach for discribing processes of radiation defect accumulation and annealing in ionic solids. Riga: Latv.Univ.press, 1975, **4**, p.24-72.

20. Tale I.A., Millers D.K., Kotomin E.A. Role of Tunnelling Recombination in Radiation-Induced F Centre Creation in Alkali Halide Crystals. -J.Phys.C: Sol. St. Phys., 1975, **8**, p.2366-2375

21. Plotnikov O.V., Kotomin E.A. Use of consecutive eliminations for the decomposition of complicated ESR spectra.-Sov.J. Appl. Spectr., 1975, No.2, p.79.

1976

22. Ermoshkin A.N., Evarestov R.A., Kotomin E.A. Molecular cluster approach to magnesium oxide crystals. (II). F^+ and F centres. -Phys. Stat. Solidi (b), 1976, **73**, p.81-86.

23. Evarestov R.A., Ermoshkin A.N., Kotomin E.A. Molecular cluster approach to magnesium and calcium oxide crystals. (III). Charge distribution analysis of some hole centres. -Phys. Stat. solidi (b), 1976, **74**, p.483-486.

1977

24. Kotomin E.A. Cirulis Ya.P., Tale I.A. A novel method of decomposition of complex spectra into elementary bands. -Proc. Latv.Univ., 1977, **160**, p.93-123.

25. Kotomin E.A., Fabrikant I.I. Theory of diffusion-Controlled Tunnelling Recombination Incorporating Annihilation and Coulomb Interaction. -J.Phys.C: Sol.St.Phys., 1977, **10**, p.4931-4937.

26. Kotomin E.A., Fabrikant I.I., Tale I.A. Temperature dependence of F centre accumulation efficiency in doped alkali halides. -J.Phys.C: Sol.St.Phys., 1977, **10**, p.2903-2914.

27. Fabrikant I.I., Kotomin E.A. Variational estimates of the quasi- steady-state radius of diffusion-controlled tunnelling recombination incorporating annihilation and Coulomb interaction. -In: Electronic and ionic processes in ionic crystals. Riga: Latv.Univ.press, 1977, **6**, p.39-56.

1978

28. Tale I.A., Kotomin E.A. Tunnelling phenomena. -Science and Technics (Riga), 1978, No.1, p.14-18.

1979

29. Shluger A.L., Kotomin E.A., Dzelme Yu.R. Quantum Chemical Calculations of Electronic, Hole Centres and Surface of NaCl Crystal. (I). -Phys. Stat. Solidi (b), 1979, **96**, No.1, p.91-97.

30. Shluger A.L., Kotomin E.A., Dzelme Yu.R., Ermoshkin A.N. On the semiempirical calculations of electronic structure of perfect and defective alkali halide crystals. -Proc.Latv.Aca. Sci., 1979, No.3, p.116-118.

31. Kotomin E.A., Fabrikant I.I. Efficiency of F centre accumulation in ionic crystals. -Proc.Latv.Aca.Sci., 1979, No.1, p.53-59.

32. Kotomin E.A., Fabrikant I.I. Estimate of quasi-steady recombination radius of defects incorporating tunnelling and elastic interaction. -Proc.Latv.Aca.Sci., 1979, No.3, p.76-83.

1980

33. Kotomin E.A., Shluger A.L., Dzelme Yu.R. Quantum Chemical Calculations of Electron, Hole Centres and Surface of NaCl Crystal. (II). -Phys. Stat. Solidi (b), 1980, **98**, No.2, p.427-433.

34. Kotomin E.A., Fabrikant I.I. Influence of Defect Interaction Upon Their Recombination in Alkali Halides. (I). -Radiat. Effects, 1980, **46**, No.1, p.85-90.

35. Kotomin E.A., Fabrikant I.I. Influence of Defect Interaction Upon Their Recombination in Alkali Halides. (II). -Radiat. Effects, 1980, **46**, No.1, p.91-96.

36. Kuzovkov V.N., Kotomin E.A. Generalized theory of diffusion- controlled defect annealing. -J.Phys.C: Sol.St.Phys., 1980, **13**, No.21, p.L499-L502.

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