

ILYA I. FABRIKANT

RESEARCH INTERESTS

Atomic Physics

Electron-Atom and Electron-Molecule Collisions

Electron Attachment to Physisorbed Molecules and Clusters

Collisions of Rydberg Atoms with Neutral Atoms and Molecules

Atomic Processes in External Fields; Negative Ion Decay and Multiphoton Ionization

Positronium Collisions with Atoms and Molecules

Collisions Involving Antimatter

EDUCATION

1971 M.S. Latvian State University, Riga, Latvia, USSR
(Theoretical Atomic Physics)

1974 Ph.D. Institute of Physics, Riga, Latvia, USSR
(Theoretical Atomic Physics)

PROFESSIONAL EXPERIENCE

1974-1984 Junior Research Fellow, Institute of Physics, Riga, Latvia, USSR
1984-1988 Senior Research Fellow, Institute of Physics, Riga, Latvia, USSR
10/88-8/89 Visiting Scholar, James Franck Institute, University of Chicago
4/89-8/89 Visiting Scientist, Harvard-Smithsonian Center for Astrophysics
8/89-9/95 Associate Professor, University of Nebraska-Lincoln
9/95-present Professor, University of Nebraska-Lincoln
7/96 Visiting Scientist, University of Sherbrooke, Quebec
9/97-12/97 Visiting Scientist, Harvard-Smithsonian Center for Astrophysics
7/98, 6/99-7/99, 6/00-7/00, Visiting Scientist, University of Kaiserslautern, Germany
6/02-7/02, 6/03, 6/04, 6/06,
6/07, 6/08, 6/09,7/10
2010-2014 Visiting Professor, Open University, Milton Keynes, UK

MEMBERSHIP

Executive Committee of the USSR Academy of Sciences on the Physics of Electronic and Atomic Collisions, 1988.

American Physical Society, 1989-

American Physical Society Fellow, 1995-

GRANT SUPPORT

“Atomic Processes Involving Negative Ions”
(National Science Foundation)

Initial Grant	1990-92	\$84,989
Renewal Grant	1992-95	\$145,120
Renewal Grant	1995-98	\$180,000
Renewal Grant	1998-01	\$180,000
Renewal Grant	2001-03	\$210,000
Renewal Grant	2004-07	\$210,000
Renewal Grant	2007-10	\$240,000
Renewal Grant	2010-14	\$210,000
Renewal Grant	2014-17	\$210,000
Renewal Grant	2018-23	\$270,000
Renewal Grant	2023-26	\$277,644

INVITED TALKS

107 invited lectures, colloquia and seminars at universities and government laboratories in the U.S.A., USSR, Russia, France, Germany, Czech Republic, Hungary, Switzerland, Austria, Canada, UK, Italy, Japan, India and China.

OTHER PROFESSIONAL ACTIVITIES AND AWARDS

NSF Reviewer and Panel Member

Harvard-Smithsonian Center for Astrophysics, Institute for Theoretical Atomic and Molecular Physics, Workshop “Threshold Phenomena” (Cambridge, MA, June 1998), Co-Chair

Japanese Society for Promotion of Science Travel Award, July-August 1999

European Conference on Elementary Processes in Atomic Systems, (Uzhgorod, Ukraine, July 2000), Organizing Committee Member

International Symposium on Electron-Molecule Collisions and Swarms (Lincoln, NE, July 2001), Chair

2nd European Conference on Elementary Processes in Atomic Systems (Gdansk, Poland, September 2002), Scientific Committee Member

US-Japan Workshop on Resonances in Physics, Chemistry and Biology (Tokyo, Japan, December 2002), Co-Chair

International Symposium on Electron-Molecule Collisions and Swarms (Prague, Czech Republic, July 2003), Scientific Committee Member and Session Chair

International Symposium on Atomic Cluster Collisions (St. Petersburg, Russia, July 2003), Scientific Committee Member

Ilya I. Fabrikant

Harvard-Smithsonian Center for Astrophysics, Institute for Theoretical Atomic and Molecular Physics: Workshop on Interaction of Slow Electrons with Molecular Solids and Biomolecules (Cambridge, MA, October 2003), Co-Chair

2005 DAMOP conference (Lincoln, NE), local committee member

2005 DAMOP conference (Lincoln, NE), symposium organizer and session chair

IVth conference on Low-Energy Electron-Molecule Interactions (Smolenice, Slovakia, 6-9 October 2005), International Scientific committee member

Marie Curie International Incoming Fellowship, 2010-2012

XVII International Symposium on Electron-Molecule Collisions and Swarms (Maynooth, Ireland, 22-25 July 2011), Scientific Committee member

European conference "Electron Driven Processes at the Molecular Level", (Prague, Czech Republic, 19-21 October 2011), Organizer, Scientific Committee member, and discussion session chair

XVIII International Symposium on Electron-Molecule Collisions and Swarms, (Kanazawa, Japan, July 2013), Scientific committee member and session chair

9th International Conference on Dissociative Recombination: Theory, Experiment and Applications. (Paris, France, 7-12 July 2013), session chair.

XIX International Symposium on Electron-Molecule Collisions and Swarms, Lisbon, Portugal, 17-20 July 2015, scientific organizing committee member and session chair.

XX International Symposium on Electron-Molecule Collisions and Swarms Townsville, Australia, 2017, International advisory committee Chair and session chair

XXI International Symposium on Electron-Molecule Collisions and Swarms, Belgrade, Serbia, 2019. International advisory committee member and session chair.

International Conference on Photonic, Electronic and Atomic Collisions, General Committee member, 2017-2023

Advisory Board member, 2018-2021:

Marie Skłodowska-Curie Innovative Training Network "Low energy ELEctron driven chemistry for the advantage of emerging NANO-fabrication methods" (ELENA) .

The Ninth International Symposium "Atomic Cluster Collisions", Canterbury, UK, 31 July - 3 August 2019, session chair

DAMOP Fellowship Selection Committee member, 2019-2021

The Sixth International Conference "Dynamics of Systems on the Nanoscale". Santa Margherita Ligure, Italy, 18-21 October, 2021, Session Chair

52nd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics (virtual), May 31-June 4, 2021: "New Physics with Positrons and Positronium", Session Chair

International Conference on Photonic, Electronic and Atomic Collisions, Ottawa, July 25-August 1, 2023: Session Chair

INVITED TALKS MADE AT PROFESSIONAL MEETINGS

1. COLLISIONS OF SLOW ELECTRONS WITH POLAR MOLECULES. IVth National School on the Physics of Electronic and Atomic Collisions, Moscow, 1977.
2. ROTATIONAL AND VIBRATIONAL EXCITATION OF POLAR MOLECULES BY ELECTRONS. National Seminar on Electron-Molecule Scattering, Leningrad, 1982.
3. COLLISIONS OF SLOW ELECTRONS WITH MOLECULES. IXth National Conference on the Physics of Electronic and Atomic Collisions, Riga 1984.
4. VIBRATIONAL EXCITATION OF MOLECULES BY ELECTRONS. VIth National School on the Physics of Electronic and Atomic Collisions, Signakhi, 1986.
5. DYNAMICS OF THE SPIN-EXCHANGE PROCESSES IN ALKALI-HELIUM PLASMA. National Seminar on the Optical Orientation of Atoms and Molecules, Leningrad, 1987.
6. NEAR-THRESHOLD PHOTODETACHMENT FROM H⁻ IONS IN PARALLEL STATIC ELECTRIC AND MAGNETIC FIELDS. Workshop on Physics of H⁻, UNM, Albuquerque, 1990.
7. RESONANT THEORY OF DISSOCIATIVE ATTACHMENT. NATO Workshop "Dissociative Recombination, Theory, Experiment and Applications", St. Jacut, 1992.
8. ADIABATIC COMPLEX-PLANE CALCULATIONS OF RYDBERG-STATE BROADENING. Workshop on Complex R-plane Techniques, Charlottesville, 1993.
9. TWO- AND THREE-BODY DYNAMICS GOVERNING COLLISIONS OF RYDBERG ATOMS WITH NEUTRAL TARGETS. 4th United States/Mexico Joint Symposium on Atomic and Molecular Physics, Mexico City, 1994.
10. ELECTRON DRIFT IN ALKALI-METAL VAPORS. Workshop on Electron Degradation Processes, Institute for Theoretical Atomic and Molecular Physics, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, 1995.
11. ELECTRON SCATTERING BY NEUTRAL TARGETS AT MILLI- AND SUBMILLI-ELECTRON-VOLT ENERGIES. 1995 Annual Meeting of the Atomic Physics Division of the American Physical Society, Toronto, 1995.
12. DISSOCIATIVE RECOMBINATION AND DISSOCIATIVE ATTACHMENT: SIMILARITIES AND DIFFERENCES. NATO Advanced Research Workshop "Dissociative Recombination: Theory, Experiment, and Applications", Ein Gedi, 1995.
13. Los Alamos Atomic, Molecular and Optical Physics Summer School, 1996. Three invited lectures on electric-field effects in photodetachment.

14. DISSOCIATIVE ATTACHMENT TO METHYL CHLORIDE: FROM GAS PHASE TO SURFACE. International Symposium on Electron-Molecule Collisions and Ion and Electron Swarms, 1997, Engelberg, Switzerland.
15. THRESHOLD PHENOMENA IN INELASTIC ELECTRON-MOLECULE COLLISIONS. Workshop on Threshold Phenomena, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, June 8-12, 1998.
16. THRESHOLD LAWS IN LOW-DIMENSIONAL SYSTEMS, Workshop on Threshold Phenomena, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, June 8-12, 1998.
17. THEORETICAL CALCULATIONS OF DISSOCIATIVE ELECTRON ATTACHMENT. CECAM Workshop Electron-molecule Collision Data for Modeling and Simulation of Plasma Processing, Lyons, September 21-24, 1998.
18. STUDIES OF DISSOCIATIVE ATTACHMENT REACITONS: FROM GAS PHASE TO CONDENSED PHASE, XXI International Conference on Physics of Electronic and Atomic Collisions. Sendai, Japan, July 22-27, 1999.
19. THEORETICAL STUDIES OF DISSOCIATIVE ATTACHMENT: FROM GAS PHASE TO CONDENSED PHASE, Europhysics Conference "Elementary Processes in Atomic Systems", Uzhgorod, Ukraine, 25-28 July 2000.
20. THEORY OF ELECTRON-MOLECULE COLLISIONS IN THE SUB-MEV RANGE, Europhysics Conference "Elementary Processes in Atomic Systems", Uzhgorod, Ukraine, 25-28 July 2000.
21. RESONANCE PROCESSES IN e -H₂/HD/D₂ COLLISIONS: DISSOCIATIVE ATTACHMENT AND DISSOCIATION FROM VIBRATIONALLY EXCITED STATES. Workshop on Molecule Assisted Recombination and Other Processes in Fusion Divertor Plasmas. ORNL, Oak Ridge, 8-9 September 2000.
22. COLLISIONS OF RYDBERG ATOMS WITH NEUTRAL TARGETS: PROBING LOW-ENERGY RESONANCES, BOUND AND VIRTUAL STATES. Workshop "Complex Phenomena Involving Rydberg Atoms and Molecules," Institute for Theoretical Atomic and Molecular Physics, Harvard-Smithsonian Center for Astrophysics, April 26-28, 2001.
23. DISSOCIATIVE ELECTRON ATTACHMENT IN GAS AND CONDENSED PHASES. International Symposium on the Dissociative Recombination of Molecules with Electrons, Chicago, IL, August 26-30, 2001.
24. THEORY OF LOW-ENERGY ELECTRON ATTACHMENT TO MOLECULES AND CLUSTERS. International Symposium on Low-Energy Electron-Molecule Interactions, Siedlce, Poland, August 29 – Sept 1, 2002.
25. THEORY OF LOW-ENERGY ELECTRON ATTACHMENT TO MOLECULES AND CLUSTERS. Joint US-Japan Workshop on Resonances in Physics, Chemistry and Biology, Hayama, Japan, December 18-20, 2002.
26. LOW-ENERGY ELECTRON ATTACHMENT TO VAN DER WAALS CLUSTERS.

International Symposium "Atomic Cluster Collisions". St. Petersburg, Russia, July 18-21, 2003.

27. CONDENSED-MATTER EFFECTS IN ELECTRON ATTACHMENT TO MOLECULES. ITAMP Workshop "Interaction of Slow Electrons with Biomolecules and Molecular Solids." Cambridge, MA, October 16-18, 2003.
28. VIBRATIONAL FESHBACH RESONANCES IN ELECTRON ATTACHMENT TO MOLECULES AND CLUSTERS. Annual DAMOP Meeting of the American Physical Society, May 25-29, 2004, Tucson, AZ.
29. I. I. Fabrikant and H. Hotop, RESONANCES IN LOW-ENERGY ELECTRON ATTACHMENT TO MOLECULES AND CLUSTERS. Sixth International Conference on Dissociative Recombination: Theory, Experiment and Applications, 12-16 July 2004, Mosbach, Germany.
30. H. Hotop (speaker), S. Barsotti, M. Braun, S. Marienfeld, M.-W. Ruf and I. I. Fabrikant. HIGH RESOLUTION STUDIES OF DISSOCIATIVE ELECTRON ATTACHMENT TO MOLECULES. 57th Gaseous Electronics Conference, 26-29 September 2004, Bunratty, Ireland.
31. LOW-ENERGY ELECTRON ATTACHMENT TO MOLECULES AND CLUSTERS. XV National Conference on Atomic and Molecular Physics, 20-23 December 2004. Ahmedabad, India.
31. H. Hotop (speaker), M. Braun, S. Marienfeld, M.-W. Ruf, and I. I. Fabrikant. HIGH RESOLUTION STUDIES OF DISSOCIATIVE ELECTRON ATTACHMENT TO MOLECULES. 14th International Symposium on Electron-Molecule Collisions and Swarms, 27-30 July 2005. Campinas, Brazil.
32. LOW-ENERGY ELECTRON ATTACHMENT TO MOLECULES AND CLUSTERS. 24th Miller Conference on Radiation Chemistry, 10-15 September 2005, La Londe les Maures, France.
33. CONDENSED-MATTER AND CLUSTER EFFECTS IN LOW-ENERGY ELECTRON-MOLECULE SCATTERING. International conference LEEMI IV-Negative Ions; Experiment and Theory, 6-9 October 2005, Smolenice, Slovakia.
34. ELECTRON ATTACHMENT TO MOLECULES IN CONDENSED-MATTER AND CLUSTER ENVIRONMENT. 231st Spring National Meeting of the American Chemical Society Symposium "Theoretical and Experimental Advances in the Study of Low-Energy Electron-Induced Processes in Complex Systems." 26-29 March 2006, Atlanta, GA.
35. ELECTRON ATTACHMENT TO MOLECULES ON A SURFACE AND IN A SOLID MEDIUM. Third Annual Meeting of ESF Programme on Electron Induced Processing at the Molecular Level. Hveragerthi, Iceland, 25-29 May 2007.
36. DISSOCIATIVE ELECTRON ATTACHMENT: THRESHOLD PHENOMENA AND MULTIMODE EFFECTS. Seventh International Conference on Dissociative Recombination: Theory, Experiment and Applications. Ameland, The Netherlands, 18-23 July 2007.
37. ELECTRON ATTACHMENT TO POLYATOMIC MOLECULES. International conference "Control of Molecular Processes Induced by Electrons and Photons: Experiments and

Interpretations". Rome, 2-4 October 2008.

38. RESONANCES AND THRESHOLD EFFECTS IN ELECTRON ATTACHMENT TO POLYATOMIC MOLECULES. ESF-FWF Conference "Chemical Control with Electrons and Photons". Obergurgl (Austria), 22-27 November 2008.
39. ELECTRON-INDUCED BOND BREAKING AT LOW ENERGIES IN BIOLOGICAL MOLECULES. 4th International Symposium "Atomic Cluster Collisions: Structure and Dynamics from the Nuclear to Biological Scale". Ann Arbor, MI, July 14-18, 2009.
40. RECENT PROGRESS IN THE THEORY OF DISSOCIATIVE ATTACHMENT: FROM DIATOMICS TO BIOMOLECULES. XVI International Symposium on Electron-Molecule Collisions and Swarms. Toronto, Canada, July 29 - August 1, 2009.
41. ELECTRON ATTACHMENT TO BIOLOGICAL MOLECULES: RESONANCES AND THRESHOLD FEATURES. 8th International Conference on Dissociative Recombination: Theory, Experiments and Applications, 16-20 August 2010, Lake Tahoe, CA.
42. RECENT PROGRESS IN THE THEORY OF DISSOCIATIVE ATTACHMENT: FROM DIATOMICS TO BIOMOLECULES. International Conference "Dynamics of Systems on the Nanoscale", 16-19 November 2010, Rome, Italy.
43. RESONANCES AND THRESHOLD EFFECTS IN DISSOCIATIVE ELECTRON ATTACHMENT TO BIOLOGICAL MOLECULES. The Fifth International Symposium "Atomic Cluster Collisions", 20-25 July 2011, Berlin, Germany.
44. THEORY OF DISSOCIATIVE ELECTRON ATTACHMENT: BIOMOLECULES, CLUSTERS AND SURFACES. European conference "Electron Controlled Chemical Lithography", Stykkishólmur, Iceland, 19-21 May 2012.
45. DISSOCIATIVE ELECTRON ATTACHMENT TO METHYL HALIDES ON SURFACES AND IN BULK MEDIA. The 13th International Workshop on Desorption and Dynamics Induced by Electronic Transitions, Stratford-upon-Avon, UK, 2-6 July 2012.
46. ELECTRON ATTACHMENT TO MOLECULES IN A CLUSTER ENVIRONMENT. International conference "Dynamics of Systems on the Nanoscale", St. Petersburg, Russia, 30 September - 4 October 2012.
47. THEORY OF DISSOCIATIVE ELECTRON ATTACHMENT: BIOMOLECULES AND CLUSTERS, ITAMP Workshop Theory of Electron-Molecule Collisions for Astrophysics, Biophysics and Low Temperature Plasmas: Opportunities and Challenges, Cambridge, MA, 3-5 December 2012.
48. THEORY OF DISSOCIATIVE ELECTRON ATTACHMENT: BIOMOLECULES AND CLUSTERS. 9th International Conference on Dissociative Recombination: Theory, Experiment and Applications. Paris, France, 7-12 July 2013.
49. THEORY OF DISSOCIATIVE ELECTRON ATTACHMENT: BIOMOLECULES AND CLUSTERS. First DEA club meeting, Trieste, Italy, 16-19 September 2013.

50. ELECTRON-INDUCED HYDROGEN LOSS IN URACIL AND THYMINE MOLECULES IN A WATER CLUSTER ENVIRONMENT, International conference "Dynamics of Systems on the Nanoscale", Edinburgh, UK, 19-23 May, 2014.
51. I. I. Fabrikant and G. F. Gribakin (speaker), POSITRONIUM SCATTERING FROM NOBLE-GAS ATOMS AT INTERMEDIATE AND LOW ENERGIES. XVIII International Workshop on Low-Energy Positron and Positronium Physics, 17-20 July, 2015, Lisbon, Portugal.
52. POSITRONIUM COLLISIONS WITH ATOMS AND MOLECULES, International Topical Conference on Charged Particle Collisions and Electronic Processes in Atoms, Molecules and Materials, Dhanbad, India, 9-11 January 2016
53. RESONANCES AND THRESHOLD EFFECTS IN ELECTRON COLLISIONS WITH MOLECULES AND CLUSTERS. The third Annual Meeting of COST Action CM1301, Krakow, Poland, 18-20 May 2016
54. DISSOCIATIVE ELECTRON ATTACHMENT PROCESSES IN BIOLOGICAL MOLECULES, 24th International Conference on the Application of Accelerators in Research and Industry, Fort Worth, TX, 30 October-4 November 2016.
55. POSITRONIUM COLLISIONS WITH ATOMS, PROTONS, AND ANTIPROTONS, Annual DAMOP Meeting of the American Physical Society, Sacramento, CA, 5-9 June 2017.
56. POSITRONIUM COLLISIONS WITH ATOMS AND MOLECULES, International Conference on Photonic, Electronic and Atomic Collisions, Cairnes, Australia, 26 July - 1 August 2017.
57. ELECTRON ATTACHMENT TO MOLECULES IN A CLUSTER ENVIRONMENT: SUPPRESSION AND ENHANCEMENT EFFECTS, 8th International Symposium on Atomic Cluster Collisions, Varadero, Cuba, 2-5 October 2017.
58. STATUS OF NONLOCAL COMPLEX POTENTIAL THEORY OF DISSOCIATIVE ELECTRON ATTACHMENT. 3rd International Workshop on Dissociative Electron Attachment, Prague, Czech Republic, 10-13 April 2018.
59. STATUS OF NONLOCAL COMPLEX POTENTIAL THEORY OF DISSOCIATIVE ELECTRON ATTACHMENT. American Chemical Society, Division of Physical Chemistry symposium "Modeling Dynamics in Dense Manifolds of Electronic States", Orlando, FL, 31 March - 4 April 2019.
60. RECENT ADVANCES IN THE THEORY OF DISSOCIATIVE ELECTRON ATTACHMENT. XXI International Symposium on Electron-Molecule Collisions and Swarms, Belgrade, Serbia, 18-21 July 2019.
61. RECENT ADVANCES IN THE THEORY OF ELECTRON ATTACHMENT TO MOLECULES AND CLUSTERS. The Ninth International Symposium "Atomic Cluster Collisions", Canterbury, UK, 31 July - 3 August 2019.
62. ELECTRON ATTACHMENT TO MOLECULES IN CONDENSED-MATTER AND CLUSTER ENVIRONMENTS. 2nd ELENA (Low energy ELEctron driven chemistry for the advantage of emerging NAno-fabrication methods) conference, Leuven, Belgium, 4-6 September

2019.

63. DISSOCIATIVE ELECTRON ATTACHMENT AT ULTRA-LOW ENERGIES. International Workshop "Dynamical Methods for Cold Molecular collisions - DYMCOM", Universite Paris-Saclay, France, 25-29 November, 2019.
64. POSITRONIUM COLLISIONS WITH ATOMS AND MOLECULES, 73rd Annual Gaseous Electronics Virtual Conference, 5-9 October, 2020
65. POSITRONIUM COLLISIONS WITH MOLECULES: FREE-ELECTRON-GAS MODEL. The Sixth International Conference "Dynamics of Systems on the Nanoscale". Santa Margherita Ligure, Italy, 18-21 October, 2021,
66. THEORETICAL ATOMIC PHYSICS AT THE INSTITUTE OF PHYSICS OF THE LATVIAN ACADEMY OF SCIENCES, 1963-1988, International conference to the 100th anniversary of the birth of Professor Ivan Prokhorovych Zapisochny, Uzhhorod, Ukraine, May 26–27, 2022 (virtual)
67. THEORY OF ELECTRON ATTACHMENT TO MOLECULES AND CLUSTERS, International Workshop "Dynamics of Electrons in Atomic and Molecular Nanoclusters", Erice, Italy, August 25-31, 2022.
68. COULOMB FOCUSING IN LASER-ASSISTED ELECTRON RECOMBINATION, International workshop "Control of Ultrafast (Attosecond and Strong Field) Processes Using Structured Light", Max Planck Institute, Dresden, July 3-5, 2023.
69. PHOTODETACHMENT AND PHOTOIONIZATION IN EXTERNAL STATIC FIELDS: OUR WORK WITH TONY STARACE. International workshop "Control of Ultrafast (Attosecond and Strong Field) Processes Using Structured Light", Memorial session for Anthony F. Starace. Max Planck Institute, Dresden, July 3-5, 2023.
70. POSITRONIUM COLLISIONS WITH ATOMS AND MOLECULES, XXI International Workshop on Low-Energy Positron and Positronium Physics & XXIII International Symposium on Electron-Molecule Collisions and Swarms, Univ of Notre Dame, August 3-6, 2023.
71. THEORY OF ELECTRON ATTACHMENT TO MOLECULES AND CLUSTERS (virtual) International conference Electronic, Spin and Quantum Processes in Molecular and Crystalline Systems, Ufa, Russia, 21-23 May 2024.
72. ELECTRON AND POSITRONIUM ATTACHMENT TO MOLECULES, 4th DEA Club Meeting, the University of Potsdam, Germany, 19-21 June 2024
73. RESONANCES IN ELECTRON AND POSITRONIUM SCATTERING BY MOLECULES, International workshop Advances in Theory of Electronic Resonances, Telluride Science Research Center, Telluride, CO, 22-26 July 2024

PUBLICATIONS

A. REFEREED JOURNALS

1. B.P. Zapol, P. Ye, Kunin, A.V. Lyubimov, I.M. Taksar, and I.I. Fabrikant, METHOD OF EFFECTIVE POTENTIAL FOR CALCULATIONS OF ATOMIC SYSTEMS, I. CALCULATION OF WAVE FUNCTIONS AND OSCILLATOR STRENGTH FOR ALKALI ATOMS, *Izvestiya Ak. Nauk Latv. SSR, ser. fiz.*, No. 6, 14 (1971) (25% computation work).
2. B.P. Zapol, P. Ye, Kunin, I.M. Taksar, and I.I. Fabrikant, METHOD OF EFFECTIVE POTENTIAL FOR CALCULATIONS OF ATOMIC SYSTEMS, III. RELATIVISTIC WAVE FUNCTIONS AND EIGENVALUES, *Izvestiya Ak. Nauk Latv. SSR, serv. fiz.*, No. 1, 3 (1972) (~ 30% formalism for solving of Dirac equation).
3. I.I. Fabrikant, CALCULATION OF CROSS SECTIONS FOR SCATTERING OF ELECTRONS BY ALKALI EARTH ATOMS IN BORN AND STATIC APPROXIMATIONS, *Izvestiya Ak. Nauk Latv. SSR, ser. fiz.*, No. 5, 3 (1973).
4. I.I. Fabrikant, INFLUENCE OF LONG-RANGE POLARIZATION ON CROSS SECTIONS FOR SCATTERING OF ELECTRONS BY ALKALI EARTH ATOMS, *Izvestiya Ak. Nauk Latv. SSR, ser. fiz.*, No. 5, 7 (1973).
5. I.I. Fabrikant, SCATTERING BY LONG-RANGE POTENTIALS FOR LOW ENERGIES, *Izvestiya Ak. Nauk Latv. SSR, ser. fiz.*, No. 6, 11 (1973).
6. I.I. Fabrikant, LOW-ENERGY ELECTRON SCATTERING BY ATOMIC MAGNESIUM, *J. Phys. B* **7**, 91 (1974).
7. I.I. Fabrikant, THE VIOLATION OF THE WIGNER LAW IN A PROBLEM WITH DEGENERATE CHANNELS COUPLED BY LONG-RANGE POTENTIAL, *J. Phys. B* **7**, L259 (1974).
8. I.I. Fabrikant and E. Kotomin, THE THEORY OF DIFFUSION-LIMITED RECOMBINATION OF DONOR-ACCEPTOR PAIRS, *J. of Luminescence* **9**, 502 (1975) (50%, analytic solution of diffusion equation).
9. R.J. Damburg and I.I. Fabrikant, THRESHOLD LAW FOR A MODEL WITH LONG-RANGE INTERACTION, *Izvestiya Ak. Nauk Latv. SSR, ser. fiz.*, No. 2, 8 (1975) (50%, analytic solution of close-coupling equations).
10. I.I. Fabrikant and E.A. Kotomin, THE THEORY OF DIFFUSION-LIMITED RECOMBINATION OF DONOR-ACCEPTOR PAIRS. I. Quasistationary Solution, *Ucheniye Zapiski Lgu* **208**, vip. 2, 78 (1974) (50%, analytic solution of diffusion equation).
11. E.A. Kotomin and I.I. Fabrikant, THE THEORY OF DIFFUSION-LIMITED RECOMBINATION OF DONOR-ACCEPTOR PAIRS. III. Inclusion of the Coulomb interaction, *Ucheniye Zapiski Lgu*, vip. 2, 108 (1974) (50%, analytic solution of diffusion equation).
12. I.I. Fabrikant, COLLISIONS OF SLOW ELECTRONS WITH ALKALI EARTH ATOMS. In *Atomniye Protsessi*, P. 80, Riga, Zinatne, 1975.

13. I.I. Fabrikant, EFFECT OF LOW-LYING D LEVEL ON ELECTRON EXCITATION CROSS SECTIONS FOR THE Cs RESONANCE LINE, *Opt. Spectrosc* **41**, 106 (1976).
14. I.I. Fabrikant, SCATTERING OF SLOW ELECTRONS BY POLAR MOLECULES, *Sov. Phys. JETP* **44**, 77 (1976).
15. I.I. Fabrikant, ELECTRON SCATTERING BY RUBIDIUM BELOW THE EXCITATION THRESHOLD, *Phys. Lett. A* **58**, 21 (1976).
16. I. I. Fabrikant, THERMAL-ELECTRON SCATTERING BY POLAR MOLECULES, *J. Phys. B* **10**, 1761 (1977).
17. E. Kotomin, I. Fabrikant, and I. Tale, TEMPERATURE DEPENDENCE OF F-CENTRE ACCUMULATION EFFICIENCY IN DOPED ALKALI HALIDES, *J. Phys. C* **10**, 2903 (1977).
18. E. Kotomin and I. Fabrikant, THEORY OF DIFFUSION CONTROLLED TUNNELING RECOMBINATION INCORPORATING COULOMB INTERACTION AND ANNIHILATION, *J. Phys. C* **10**, 4931 (1977).
19. I.I. Fabrikant, THRESHOLD BEHAVIOR OF CROSS SECTIONS FOR ELECTRON SCATTERING BY POLAR MOLECULES, *Sov. Phys. JETP* **46**, 693 (1977).
20. I.I. Fabrikant and E.A. Kotomin, VARIATIONAL ESTIMATES OF QUASISTATIONARY RADIUS OF DIFFUSION CONTROLLED TUNNELING RECOMBINATION INCORPORATING ANNIHILATION AND COULOMB INTERACTION. In *Elektronniye ionniye processi v ionnikh kristallakh*, vip. 6, p. 39, Latv. Univ., 1977.
21. I.I. Fabrikant, THE INFLUENCE OF LONG-RANGE INTERACTION ON THE VIBRATIONAL EXCITATION OF POLAR MOLECULES BY ELECTRONS, *J. Phys. B* **11**, 3621 (1978).
22. I.I. Fabrikant, SCATTERING OF ELECTRONS BY BARIUM ATOMS ABOVE THE IONIZATION THRESHOLD, *Izvestiya Ak. Nauk Latv. SSR, ser. fiz.*, No. 1, 16 (1979).
23. I.I. Fabrikant and E.A. Kotomin, EFFICIENCY OF F-CENTRE RADIATION ACCUMULATION IN IONIC CRYSTALS, *Izvestiya Ak. Nauk Latv. SSR, ser. fiz.*, No. 1, 53 (1979).
24. I.I. Fabrikant and E.A. Kotomin, ESTIMATE OF QUASISTATIONARY RADIUS OF DIFFUSION CONTROLLED RECOMBINATION OF DEFECTS WITH THE INCLUSION OF TUNNELING AND ELASTIC INTERACTION, *Izvestiya Ak. Nauk Latv. SSR, ser. fiz.*, no. 3, 76 (1979).
25. I.I. Fabrikant, THE INFLUENCE OF ar^{-8} POTENTIAL ON ELECTRON SCATTERING BY POLAR MOLECULES, *J. Phys. B* **12**, 3599 (1979).
26. I.I. Fabrikant, CALCULATION OF ELECTRON SCATTERING CROSS SECTIONS FOR MAGNESIUM AND BARIUM, *J. Phys. B* **13**, 603 (1980).
27. E. Kotomin and I. Fabrikant, INFLUENCE OF DEFECT INTERACTION UPON THEIR RECOMBINATION IN IONIC CRYSTALS. I, II., *Radiation effects* **46**, 85 (1980); **92** (1980).

28. I.I. Fabrikant, MECHANISM OF FORMATION OF SHAPE RESONANCES IN THE EXCITATION OF 2^3s STATE OF HELIUM BY ELECTRONS, *Opt. Spectrosc.* **48**, 123 (1980).
29. I.I. Fabrikant, DIFFERENTIAL CROSS SECTIONS FOR ELECTRON SCATTERING BY POLAR MOLECULES. ELASTIC SCATTERING AND VIBRATIONAL EXCITATION, *Phys. Let. A* **77**, 421 (1980).
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B. PUBLICATIONS IN PROCEEDINGS AND BOOKS

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C. ABSTRACTS OF CONTRIBUTED PAPERS

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