

E. E. NIKITIN
LIST OF PUBLICATIONS

BOOKS

1. E. E. Nikitin, *Current Theories of Thermal Decomposition and Isomerisation of Molecules in Gas Phase*. Moscow: Nauka, 1964, 106p. (in Russian).
English Edition: *Theory of Thermally Induced Gas Phase Reactions*.
Bloomington & London: Indiana University Press, 1966, 156p.
2. E. E. Nikitin, *Theory of Elementary Atom-Molecule Processes in Gases*.
Moscow: Khimiya 1970, 435p. (in Russian).
English Edition: *Theory of Elementary Atomic and Molecular Processes in Gases*. Oxford: Clarendon Press, 1974, 472p.
3. E. E. Nikitin, *Theory of Elementary Atom-Molecule Reactions. Part 1. Methods*.
Novosibirsk: Novosibirsk University Press, 1971, 190p. (in Russian).
4. E. E. Nikitin, *Theory of Elementary Atom-Molecule Reactions. Part 2. Processes*.
Novosibirsk: Novosibirsk University Press, 1974, 220p. (in Russian).
5. V. N. Kondratiev and E. E. Nikitin, *Kinetics and Mechanisms of Gas-Phase Reactions*. Moscow: Nauka, 1974, 558p. (in Russian).
6. E. E. Nikitin and L. Zuelicke, *Theory of Chemical Elementary Processes*.
Berlin: Central Institute of Physical Chemistry, 1976, 168p.
7. V. N. Kondratiev, E. E. Nikitin, A. I. Reznikov, and S. Ya. Umanski,
Thermal Bimolecular Reactions in Gases.
Moscow: Nauka, 1976, 192p. (in Russian).
8. E. E. Nikitin and L. Zuelicke,
Selected Topics of the Theory of Chemical Elementary Processes. Lecture Notes in Chemistry. Berlin-Heidelberg: Springer-Verlag, 1978, 176p.
9. E. E. Nikitin and A. I. Osipov, *Vibrational Relaxation in Gases*.
Moscow: VINITI, 1977, 180p. (in Russian).
10. E. E. Nikitin and S. Ya. Umanski, *Nonadiabatic Transitions in Slow Atomic Collisions*. Moscow: Atomizdat, 1979, 272p. (in Russian).
Revised English Edition: *Theory of Slow Atomic Collisions*.
Berlin-Heidelberg: Springer-Verlag, 1984, 432p.
11. E. E. Nikitin and S. Ya. Umanski, *Semiempirical Methods of Calculation of Interatomic Interaction*. Moscow: VINITI, 1980, 250p. (in Russian).
12. V. M. Galitski, E. E. Nikitin, and B. M. Smirnov, *Collision Theory of Atomic*

Particles. Moscow: Nauka, 1981, 255p (in Russian).

13. V. N. Kondratiev and E. E. Nikitin, *Chemical Processes in Gases*. Moscow: Nauka, 1981, 262p. (in Russian).
Revised English Edition: *Gas-Phase Reactions. Kinetics and Mechanisms*. Berlin-Heidelberg: Springer-Verlag, 1981, 240p.
14. E. E. Nikitin, *Dynamics of Molecular Collisions*. Moscow: VINITI, 1983, 240p. (in Russian).
15. E. E. Nikitin, *Elementary Events of Energy Transfer in Three-Atom Systems*. Moscow: VINITI, 1985, 198p. (in Russian).
16. E. E. Nikitin and L. Zuelicke, *Theorie Chemischer Elementarprozesse*. Berlin: Akademie Verlag, 1981. 230p.
17. E. E. Nikitin and B. M. Smirnov, *Atomic and Molecular Processes. Problems and Solutions*. Moscow: Nauka, 1989. 303p. (in Russian).
18. E. E. Nikitin and B. M. Smirnov, *Slow Atomic Collisions*. Moscow: Energoatomizdat, 1990, 250p. (in Russian).

Articles

1. A. D. Stepukhovich and E.E.Nikitin, Inhibition and initiation of paraffin cracking, *Doklady Akad. Nauk SSSR*, v.105, 997 (1955)
2. A. D. Stepukhovich and E. E. Nikitin, Kinetics and mechanism of hydrocarbon decomposition; initiation of the butane cracking by traces of azomethane, *Zhurn. Fiz. Khim.*, v.30, 1291 (1956)
3. A. D. Stepukhovich, I. G. Kaplan, and E. E. Nikitin, Tetramethylethylene as a new inhibitor of cracking. *Zhurn. Fiz. Khim.*, v.31, 1437 (1957)
4. A. D. Stepukhovich and E. E. Nikitin, Theory of inhibition of hydrocarbon cracking by tetramethylethylene, *Zhurn. Fiz. Khim.*, v.31, 1677 (1957)
5. A. D. Stepukhovich and E. E. Nikitin, On kinetics and mechanism of tetramethylethylene decomposition, *Zhurn. Fiz. Khim.*, v.31, 2400 (1957)
6. E. E. Nikitin, On deviations from the Boltzmann distribution in the decomposition of diatomic molecules, *Doklady Akad. Nauk SSSR*, v.116, 584 (1957)
7. E. E. Nikitin, Calculation of the rate constant for decomposition of diatomic molecules, *Doklady Akad. Nauk SSSR*, v.119, 526 (1958)
8. E. E. Nikitin, On a perturbation of the thermal equilibrium in the thermal

- dissociation of diatomic molecules, Zhurn. Fiz. Khim., v.33, 519 (1959)
9. E. E. Nikitin, On the calculation of the rate constant for a bimolecular decomposition of molecules, Zhurn. Fiz. Khim., v.33, 1893 (1959)
 10. E. E. Nikitin and N. D. Sokolov, On the relation between rate constants of thermal decomposition of diatomic molecules in the presence and absence of equilibrium, Doklady Akad. Nauk.SSSR, v.124, 366 (1959)
 11. E. E. Nikitin and N. D. Sokolov, Theory of thermal second-order decomposition of molecules, J. Chem. Phys., v.11, 1371 (1959)
 12. E. E. Nikitin, Theory of thermal decomposition of nitrous oxide at low pressures, Doklady Akad. Nauk SSSR, v.129, 157 (1959)
 13. E. E. Nikitin, Calculation of vibrational excitation probabilities of molecules in collisions. Optika i Spekr.,v.6, 141 (1959)
 14. E. E. Nikitin, Band shapes of pressure-induced vibrational and rotational spectra of diatomic molecules, Optika i Spekr., v.7, 744 (1959)
 15. E. E. Nikitin, Vibrational relaxation of diatomic molecules, Doklady Akad. Nauk SSSR, v.124, 1084 (1959)
 16. E. E. Nikitin, On a mechanism of the intermolecular energy exchange in dissociation reaction, Doklady Akad. Nauk SSSR, v.132, 395 (1960)
 17. E. E. Nikitin, and N. D. Sokolov, Theory of thermal decomposition of diatomic molecules, Izvestiya AN SSSR, v.24, 996 (1960)
 18. E. E. Nikitin, Vibrational distribution functions of polyatomic molecules in thermal decomposition, Doklady Akad. Nauk SSSR, v.135, 1442 (1960)
 19. E. E. Nikitin, Nonadiabatic vibrational excitation of molecules, Optika i Spekr., v.9, 16 (1960)
 20. E. E. Nikitin, On the interpretation of spectra of compressed gases, Optika i Spekr., v.8, 264 (1960)
 21. E. E. Nikitin, On a possible mechanism of electronic excitation in slow collisions. Optika i Spekr., v.8, 157 (1960)
 22. E. E. Nikitin, Wave functions of diatomic molecules at strong spin-orbit interaction, Optika i Spekr., v.10, 443 (1961)
 23. E. E. Nikitin, Nonadiabatic transitions near the turning point in atomic collisions, Optika i Spekr. v.11, 452 (1961).

24. E. E. Nikitin, Intermolecular energy transfer in collisions of chemically active molecules. Doklady Akad. Nauk SSSR, v.136, 1376 (1961)
25. E. E. Nikitin, On the interelectron interaction in large molecules, Optika i Spekr., v.12, 691 (1962)
26. E. E. Nikitin, Effect of the vibrational-rotational interaction in the vibrational relaxation of diatomic molecules, Kinetika i Kataliz, v.3, 332 (1962)
27. E. E. Nikitin, On the mechanism of nonadiabatic relaxation of NO molecules. Eighth Int. Symposium on Combustion, Baltimore, p. 319, 1962
28. E. E. Nikitin, Band shapes of induced rotational and vibrational spectra of diatomic molecules, in: Adv. Molec. Spectroscopy, Pergamon Press, p.298 (1962)
29. E. E. Nikitin, Resonance and nonresonance intermolecular energy exchange in molecular collisions, Disc. Faraday Soc., v. 33, 14 (1962)
30. E. E. Nikitin, Resonance vibrational relaxation in a system of harmonic oscillators, Doklady Akad. Nauk SSSR, v.148, 298 (1962)
31. E. E. Nikitin, The probability of nonadiabatic transitions in the case of nondivergent terms, Optika i Spekr., v.13, 761 (1962)
32. E. E. Nikitin, On the relation between rate constants for dissociation and recombination, Kinetika i Kataliz, v.3, 380 (1962)
33. E. E. Nikitin, Bimolecular preassociation of polyatomic molecules, Doklady Akad. Nauk. SSSR, v.152, 1395 (1963)
34. E. E. Nikitin, On the interelectronic and nonadiabatic interactions in long-chain molecules, in: Voprosy Kvantovoy Khimii, Leningrad University Press, 1963, p.100.
35. E. E. Nikitin, Charge exchange in the accidental resonance case, Izvesiya AN SSSR, v.27, 996 (1963)
36. V. K. Bykhovski and E. E. Nikitin, Nonadiabatic transitions in atomic collisions. Quenching of sodium resonance fluorescence by argon, Optika i Spekr., v.17, 815 (1964)
37. V. K. Bykhovski and E. E. Nikitin, Nonadiabatic transitions in atom-molecule collisions. Quenching of mercury resonance fluorescence, Optika i Spekr., v.16, 202 (1964)
38. E. E. Nikitin, Theory of nonadiabatic vibrational relaxation in atom-molecular collisions, Mol. Phys., v.7, 389 (1964)
39. E. E. Nikitin, Mean lifetimes of active molecules and oscillator models of unimolecular reactions, Mol. Phys., v.8, 65 (1964)

40. E. E. Nikitin, The compound-molecule model in the theory of chemical reactions, *Mol. Phys.*, v.8, 473 (1964)
41. V. K. Bykhovski, E. E. Nikitin, and M. Ya. Ovchinnikova, Probability of a nonadiabatic transition near the turning point, *Zh.Eksp.Teor. Fiz.*, v.47, 750 (1964)
42. E. E. Nikitin, Methods for the calculation of nonadiabatic transition probabilities, *Optika i Spekt.*, v.18 763 (1964)
43. E. E. Nikitin, Mechanism of atomic fluorescence quenching in collisions with diatomic molecules, *J. Quant. Spectr. Rad. Transfer*, v.5, 435 (1965)
44. E. E. Nikitin, Rotational relaxation of diatomic molecules, *Doklady Akad. Nauk SSSR*, v. 161, 637 (1965)
45. V. K. Bykhovski and E. E. Nikitin, Charge exchange in collisions of multiply charged ions, *Zhurn. Eksp. Teor. Fiz.*, v.48, 1944 (1965)
46. E. E. Nikitin, Nonadiabatic transitions between fine-structure components of alkali atoms in collisions, *Optika i Spekt.*, v.19,161 (1965)
47. E. E. Nikitin, Nonadiabatic transitions between fine-structure components of alkali atoms upon collision with inert-gas atoms, *J. Chem. Phys.*, v.43, 744 (1965)
48. E. E. Nikitin, Average lifetime of activated molecules, *Kinetika i Kataliz*, v.6, 17 (1965)
49. E. E. Nikitin, Intermediate complex model in the theory of chemical reactions, *Kinetika i Kataliz*, v.6, 337 (1965)
50. E. E. Nikitin, On the statistical theory of endothermic reactions. I. Bimolecular reactions, *Teor. Eksp. Khim.*, v.1, 135 (1965)
51. E. E. Nikitin, On the statistical theory of endothermic reactions. II. Unimolecular reactions, *Teor. Eksp. Khim.*, v.1, 144 (1965)
52. E. E. Nikitin, On the statistical theory of exothermic unimolecular reactions. *Teor. Eksp. Khim.* v.1, 428 (1965)
53. E. E. Nikitin and N. N. Korst, Relaxation in a double potential well, *Teor. Eksp. Khim.*, v.1, 11 (1965)
54. E. E. Nikitin, Activation mechanisms and nonequilibrium distribution functions in unimolecular reactions, *Teor. Eksp. Khim.*, v.2, 19 (1966)
55. V. N. Kondratiev and E. E. Nikitin, Rate constants for the processes $O_2 + Ar$, $O+O+Ar$, *J. Chem. Phys.*, v.45, 1078 (1966)

56. V. N. Kondratiev, E. E. Nikitin, and V. L. Tal'rose, Problems connected with the investigation of elementary processes in low-temperature plasma, *Pure and Applied Chemistry*, v. 13, 367 (1966)
57. E. E. Nikitin, Theory of thermal excitation and de-excitation of alkali atoms in an inert gas heat bath, *Comb. and Flame*, v.10, 381 (1966)
58. E. E. Nikitin, Inelastic transitions between fine-structure components of alkali atoms in adiabatic collisions. I. General theory, *Optika i Spektr.*, v.22, 689 (1967)
59. E. E. Nikitin, Theory of thermal excitation and deexcitation of alkali atoms in a noble gas heat bath, *Teplofiz. Vysokich Temperatur*, v.2, 224 (1967)
60. E. I. Dashevskaya and E. E. Nikitin, Inelastic transitions between fine-structure components of alkali atoms in adiabatic collisions. II. Calculation of cross sections, *Optika i Spektr.*, v.22, 866 (1967)
61. E. E. Nikitin, Effect of rotation on vibrational relaxation of molecules, *Teor. Eksp. Khim.*, v.3, 185 (1967)
62. A. Bjerre and E. E. Nikitin, Energy transfer in collisions of excited sodium atoms with nitrogen molecules, *Chem. Phys. Lett.*, v.1, 179 (1967)
63. V. N. Kondratiev and E. E. Nikitin, Temperature dependence of the rate constants of gas phase reactions, *Uspekhi khimii*, v.11, 36 (1967)
64. E. E. Nikitin, Optical model for spectator-stripping reactions, *Chem. Phys. Lett.*, v.1, 266 (1967)
65. E. E. Nikitin, Nonadiabatic energy transfer in gases, in: *Nobel Symposium 5. Fast Reactions and Primary Processes in Chemical Kinetics*. Stockholm, Almqvist & Wiksell, ed. S. Claesson, p. 165, 1967
66. E. E. Nikitin, Charge-exchange induced reactions, *Teor. Eksp. Khim.*, v.4, 593 (1968)
67. E. E. Nikitin, Quantum effects in electron-harpooning reactions, *Teor. Eksp. Khim.*, v.4, 751 (1968)
68. E. E. Nikitin, Der gegenwärtige Stand der Theorien bimolekularer Reaktionen, *Ber. Bunsenges. Phys. Chem.*, v.72, 949 (1968)
69. A. I. Burshtein and E. E. Nikitin, Line shape of transitions between lambda-doublet components, *Zhurn. Eksp. Teor. Fiz.*, v.55, 1401 (1968)
70. E. E. Nikitin, The current status of the theory of bimolecular reactions, *Uspekhi Khimii*, v.38, 1153 (1968)

71. E. E. Nikitin, Quasistationary states in a conical potential well, Doklady Akad. Nauk SSSR, v.183, 319 (1968)
72. E. E. Nikitin, Nonadiabatic processes in the energy transfer in gases, Uspekhi Khimii, v.37, 1669 (1968)
73. E. E. Nikitin, Relaxation of vibrational energy in collisions of polyatomic molecules, Teor. Eksp. Khim., v.4, 305 (1968)
74. G. A. Kapralova, E. E. Nikitin, and A. M. Chaikin, Nonempirical calculations of the probabilities of vibrational transitions in hydrogen halide molecules, Chem. Phys. Lett., v.2, 581 (1968)
75. E. E. Nikitin and G. H. Kohlmaier, Energieübertragung mehratomiger Moleküle mit hohen Energieniveaudichten, Ber. Bunsenges. Phys. Chem., v.72, 1021 (1968)
76. E. E. Nikitin, Quasistationäre Zustände in der konischen Potentialmulde, Theor. Chim. Acta, v.13, 308 (1968)
77. E. E. Nikitin, Theory of nonadiabatic transitions. Recent development of the Landau-Zener model, in: Chemische Elementarprozesse, Springer, p.43 1968
78. A. I. Voronin and E. E. Nikitin, Intramultiplet mixing cross sections for atoms of the second column, Optika i Spekr., v.25, 803 (1968)
79. E. E. Nikitin, Nonresonance excitation transfer in atomic collisions induced by dipole-dipole interaction, Chem. Phys. Lett., v.2, 402 (1968)
80. E. I. Dashevskaya, A. I. Voronin, and E. E. Nikitin, Theory of excitation transfer in collisions between alkali atoms. I. Identical partners, Canad. J. Phys., v.47, 1237 (1969)
81. E. E. Nikitin and S. Ya. Umanski, Elektronenwellenfunktionen und Terme zweiatomiger Moleküle bei grossen Atomabständen, Theor. Chim. Acta, v.13, 91 (1969)
82. G. A. Kapralova, E. E. Nikitin, and A. M. Chaikin, Vibrational transition probabilities in hydrogen halides, Kinetika i Kataliz, v.10, 974 (1969)
83. E. E. Nikitin, Resonance and nonresonance excitation transfer in collisions of excited and ground-state alkali atoms, Comm. At. Mol. Phys., v.1, 111 (1969)
84. E. P. Gordeev, E. E. Nikitin, and M. Ya. Ovchinnikova, Calculation of cross sections for the depolarization of 2P states in alkali atoms, Canad. J. Phys., v.47, 1819 (1969)
85. E. E. Nikitin, Mixing and depolarisation of $P_{1/2}$ and $P_{3/2}$ states of excited alkali atoms induced by collisions, Comm. At. Mol. Phys., v.1, 122 (1969)

- 86 E. I. Dashevskaya, E. E. Nikitin, and A. I. Reznikov, Theory of intramultiplet mixing in alkali atoms in collisions, *Optika i Spekr.* v.29, 1016 (1970)
87. E. I. Dashevskaya, E. E. Nikitin, and A. I. Resnikov, Theory of collisionally induced intramultiplet mixing in excited alkali atoms, *J. Chem. Phys.*, v.53, 1175 (1970)
88. E. I. Dashevskaya, E. E. Nikitin, A. I. Voronin, and A. A. Zembekov, Theory of excitation transfer in collisions between alkali atoms. II. Dissimilar partners. *Canad. J. Phys.*, v.48, 981 (1970)
89. E. E. Nikitin, The theory of nonadiabatic transitions. Recent development with the exponential model, *Adv. Quant. Chem.*, v.5, 135 (1970)
90. E. E. Nikitin, The Landau-Zener model and its region of applicability, *Comm. At. Mol. Phys.*, v.1, 166 (1970)
91. E. E. Nikitin, Gyroscopic interpretation of two-state hypergeometric models of nonadiabatic coupling, *Comm. At. Mol. Phys.*, v.2, 4 (1970)
92. E. E. Nikitin and E. A. Andreev, Nicht-adiabatische Übergänge bei Stößen zwischen Atomen und Molekülen. Desaktivierung von Br- und I-Atomen durch zweiatomige Moleküle, *Theoret. Chim. Acta*, v.17, 171 (1970)
93. E. E. Nikitin, VT versus VR energy transfer in molecular collisions, *Comm. At. Mol. Phys.*, v.2, 166 (1970)
94. E. I. Dashevskaya, E. E. Nikitin, and A. I. Reznikov, Mechanisms of intramultiplet mixing in alkali atoms, in: *Sensitized fluorescence of metal vapours*, Riga University, p.91 1971
95. E. P. Gordeev, E. E. Nikitin, and M. Ya. Ovchinnikova, Depolarization of the P-state of alkali atoms in collisions with noble gas atoms, *Optika i Spekr.*, v.30, 189 (1971)
96. E. E. Nikitin and A. I. Reznikov, Excitation transfer in highly excited alkali atoms. I. Cs + noble gases, *Chem. Phys. Lett.*, v.8, 1 (1971)
97. E. E. Nikitin, Remarks on different theoretical approaches to the collisionally induced depolarization, *Comm. At. Mol. Phys.*, v.3, 7 (1971)
98. A. A. Zembekov and E. E. Nikitin, Excitation transfer in highly excited alkali atoms. II. Cs + Cs, *Chem. Phys. Lett.*, v.9, 213 (1971)
99. E. I. Dashevskaya, E. E. Nikitin, and A. I. Reznikov, Theory of intramultiplet mixing in alkali atoms in collisions, *Optika i Spekr.*, v.21, 108 (1971)

100. E. E. Nikitin and S. Ya. Umanski, Effect of electronic-vibrational interaction on the vibrational relaxation of O₂ and N₂ in collisions with O atoms, Doklady Akad. Nauk SSSR, v.145, 196 (1971)
101. A. I. Voronin, E. E. Nikitin, and A. Steinman, On the mechanism of the singlet-triplet transition in methylene, Doklady Akad. Nauk SSSR, v.196, 852 (1971)
102. E. E. Nikitin and L. Yu. Rusin, Angular distribution of reaction products in the decomposition of a long-lived complex, Doklady Akad. Nauk SSSR, v.198, 330 (1971)
103. A. A. Zembekov and E. E. Nikitin, On the dynamics of harpooning reactions, Doklady Akad. Nauk SSSR, v.205, 1392 (1972)
104. E. E. Nikitin and S. Ya. Umanski, Effect of vibronic interaction upon vibrational relaxation of diatomic molecules, Faraday Disc. Chem. Soc., No.53, 7 (1972)
105. E. E. Nikitin and A. I. Reznikov, Calculation of transition probabilities using the Landau-Zener model, Phys. Rev.A, v.6, 522 (1972)
106. E. E. Nikitin and S. Ya. Umanski, Vibrational to translational vs vibronic to translational energy transfer in molecular collisions, Comm. At. Mol. Phys., v.3, 195 (1972)
107. E. E. Nikitin, The Landau-Zener model in the theory of atomic collisions, in: Physics of Ionized Gases. Institute of Physics, Belgrade, ed. M. V. Kurepa, p.117, 1972
108. E. E. Nikitin and M. Ya. Ovchinnikova, Interference phenomena in atomic scattering, Uspekhi Fiz. Nauk, v.104, 2 (1972)
109. E. E. Nikitin, Transfer of vibrational energy in collisions of diatomic molecules, Proceedings of Institute of Mechanics, Moscow State University, v.24, 44 (1973)
110. J. E. Bayfield, E. E. Nikitin, and A. I. Reznikov, Semiclassical scattering matrix for the two-state exponential model, Chem. Phys. Lett., v.19, 471 (1973)
111. E. E. Nikitin and V. N. Kondratiev, On a nonadiabatic mechanism of the reactions O + HX → OH + X (X=F, Cl, Br, I), Doklady Akad. Nauk SSSR, v. 212, 159 (1973)
112. E. E. Nikitin, Nonequilibrium chemical reactions, in: Kinetics of elementary chemical reactions, Moscow, Nauka 1973, p.51
113. E. E. Nikitin, The Landau-Teller model in the theory of collisional excitation of molecules, Proceedings of second USSR summer school on physics of electronic and atomic collisions. Leningrad Physico-Technical Institute, p.14, 1973

114. E. E. Nikitin and C. Ya. Umanski, Wellenfunktionen und Terme des Systems Atom-zweiatomiges Molekül bei grossen intermolekularen Abständen, *Theor. Chim. Acta*, v.28, 121 (1973)
115. E. I. Dashevskaya, R. McCarroll, F. Masnou, and E. E. Nikitin, Approximation of sudden switching of couplings for intramultiplet transitions, *Optika i Spekr.*, v.37, 209 (1974)
116. E. E. Nikitin, Theory of energy transfer in molecular collisions, in: *Physical Chemistry. An Advanced Treatise v.6A*, Academic Press, p. 167, 1974, ed. W. Jost
117. E. E. Nikitin, Dynamics of nonadiabatic bimolecular reactions, *Uspekhy khimii*, v.43, 1905 (1974)
118. E. E. Nikitin and S. Ya. Umanski, Statistical theory of bimolecular reactions, in: *Khimiya Plasmy*, M.: Atomizdat v.1, 8 (1974), ed. B. M. Smirnov
119. U. Havemann, L. Zuelicke, E. E. Nikitin, and A. A. Zembekov, Model calculation of harpooning elementary processes in the system $K + Br_2$, *Chem. Phys. Lett.*, v.25, 487 (1974)
120. U. Havemann, L. Zuelicke, E. E. Nikitin, and A. A. Zembekov, Zur Theorie elektronisch nichtadiabatischer Elementarprozesse. *Z. Phys. Chem. Leipzig*, v.255, 1179 (1974)
121. E. E. Nikitin and L. Yu. Rusin, Statistical distribution functions of products of exoergic reactions, *Khimiya Vysokhikh Energii* v.2, 124 (1975)
122. E. E. Nikitin, Theory of nonadiabatic collision processes including excited alkali atoms, in: *The Excited States in Chemical Physics*, *Adv. Chem. Phys.*, v.75, 317 (1975), ed. J. W. McGowan
123. E. E. Nikitin, Intramultiplet mixing and depolarization in atomic collisions, in: *Atomic physics IV*, Plenum Press 1975, p.529, ed. G. zu Putlitz
124. E. E. Nikitin, M. Ya. Ovchinnikova, and A. I. Shushin, Excitation mechanism in the Na -Ne system, *Pis'ma v Zhurn. Eksp. Teor. Fiz.*, v.21 633 (1975)
125. I. V. Lebed' and E. E. Nikitin, Deactivation of rotationally excited hydrogen halide molecules, *Doklady Akad. Nauk SSSR*, v.224, 373 (1975)
126. E. E. Nikitin, Non-adiabatic effects in collisional vibrational relaxation of diatomic molecules, in *The Physics of Electronic and Atomic Collisions*, eds. J. Risley, R. Geball, University of Washington Press, Seattle and London, p.87, 1975
127. E. E. Nikitin, M. Ya. Ovchinnikova, and A. I. Shushin, Collisional excitation in the systems Na - Ne and O - Ne, *Zhurn. Eksp. Teor. Fiz.*, v.70, 1243 (1976)

128. E. I. Dashevskaya and E. E. Nikitin, Polarization transfer and relaxation in collisions of excited alkali atoms, *Canad. J. Phys.*, v.54, 709 (1976)
129. E. E. Nikitin, M. Ya. Ovchinnikova, B. Andresen, and A. E. de Vries, Semiclassical calculation of charge transfer: tunneling at large angular momentum, *Chem. Phys.*, v.14, 121 (1976)
130. E. E. Nikitin, The Landau-Zener theory in atomic collision theory, in: *Proceedings of the Third USSR summer school on physics of electronic and atomic collisions*, Leningrad Physico-Technical Institute, p.131 1976
131. E.E.Nikitin, Nonadiabatic effects in collisional vibrational relaxation of diatomic molecules, in: *Physics of electronic and atomic collisions*. University of Washington Press, p.275, 1976, ed. J. Risley
132. E. E. Nikitin, Nonadiabatic molecular collisions, *Proceedings of the VI. USSR Conference on Physics of Electronic and Atomic Collisions*. Leningrad Physico-Technical Institute, 1976.
133. E. A. Andreev and E. E. Nikitin, Translation-vibration energy transfer in atom-molecule collisions, in: *Khimiya Plazmy*, Moscow, Atomizdat, v.3, 28 (1976), ed. B. M. Smirnov
134. I. V. Lebed', E. E. Nikitin, and S. Ya. Umanski, Collision-induced transitions between rotational levels of diatomic molecules in Π -states, *Optika i Spekr.*, v.43, 636 (1977)
135. A. I. Burshtein and E. E. Nikitin, Relaxation and depolarization of atomic states in collisions, in: *Gas Lasers*, Novosibirsk, Nauka, p. 7 1977
136. E. E. Nikitin and A. I. Shushin, Excitation paths of alkali atoms in collisions, *Optika i Spekr.*, v.43, 399 (1977)
137. E. A. Gordeev, E. E. Nikitin, and A. I. Shushin, Nonadiabatic coupling between three states: application to alkali diatoms, *Mol. Phys.*, v.33, 1611 (1977)
138. Yu. M. Gershenson, E. E. Nikitin, V. B. Rosenshtein, and S. Ya. Umanski, Interaction of vibrationally excited molecules with chemically active atoms, in: *Khimiya plazmy*, v.5,.3 (1978) Moscow, Atomizdat, ed. B. M. Smirnov
139. E. E. Nikitin and M. Ya. Ovchinnikova, On the magnetic field effect in collisional depolarization of the $P_{1/2}$ state of alkali atoms, *J. Phys. B*, v.11, 465 (1978)
140. E. E. Nikitin and B. M. Smirnov, Quasiresonance processes at slow atomic collisions, *Uspekhi Fiz. Nauk*, v.124, 201 (1978)

141. E. E. Nikitin and A. I. Reznikov, Stueckelberg phase calculations for the two-state exponential model, *J. Phys. B*, v.11, 695 (1978)
142. E. E. Nikitin, Vibrational relaxation of highly-excited polyatomic molecules, *Doklady Akad. Nauk SSSR*, v. 239, 380 (1978)
143. E. E. Nikitin, Vibrational relaxation of diatomic molecules by potentially reactive atoms, in: *Gas-dynamic lasers and laser photochemistry*, Moscow University Press, p.23, 1978
144. E. E. Nikitin and B. M. Smirnov, Quasiresonance processes in atomic collisions, in: *Atomic Physics VI*, Zinante-Plenum Press, Riga-New York, p. 267, 1979
145. E. E. Nikitin, Adiabatische Näherung und nichtadiabatische Wechselwirkung in Elementarprozessen, *Nova Acta Leopoldina*, v.9, 49 (1979)
146. U. Havemann, L. Zuelicke, A. A. Zembekov, and E. E. Nikitin, Simple semiclassical optical model of harpooning elementary process $K + Br_2$, *Chem. Phys.*, v.41, 285 (1979)
147. A. A. Zembekov, E. E. Nikitin, U. Havemann, and L. Zuelicke, Dynamics of harpooning reactions as a prototype of chemiionization; in: *Khimiya Plazmy*, v.6, 3 (1979), Moscow, Atomizdat,
148. E. E. Nikitin, Potential energy surfaces and nonadiabatic elementary processes, in: *Problemy Khimicheskoi Kinetiki*, Moscow, Nauka, p.66 1979,
149. E. E. Nikitin and L. Yu. Rusin, Statistical models in the dynamics of elementary chemical reactions, in: *Physical Chemistry. Current problems*, M.: Khimiya, 1980, p.49, ed. Ya. M. Kolotyarkin
150. E. E. Nikitin, Kinetik chemischer Elementarreaktionen, *Nova Acta Leopoldina*, NF 51, 153 (1980)
151. V. M. Akimov, E. E. Nikitin, L. Yu. Rusin, and A. Stelmakh, Dissociative ionization of molecules in collisions with Xe atoms in crossed molecular beams, *Doklady Akad. Nauk SSSR*, v.233, 633 (1980)
152. E. E. Nikitin and A. I. Resnikov, Simple semiclassical calculations of fine-structure transition probabilities, *J. Phys. B*, v.13, L57, (1980).
153. E. E. Nikitin and M. Ya. Ovchinnikova, Role of anharmonic dynamics in the vibrational relaxation of impurity molecules in solids, *Zhurn. Eksp. Teor. Fiz.*, v.78, 1551 (1980)
154. A. A. Zembekov and E. E. Nikitin, Correlation diagrams of electronic states of triatomic systems and the interpretation of reaction dynamics, *Khimiya plazmy*, v.7. p.4-35, 1980, Atomizdat, ed. B. Smirnov.

155. J. Grosser, E. E. Nikitin, A. Shushin, and A. E. de Vries, Ion pair formation by spin-orbit interaction in collisions between fluorine atoms and zinc, cadmium and mercury atoms, *Chem. Phys.*, v.56, 21 (1981).
156. A. A. Zembekov, A. I. Maergoiz, E. E. Nikitin, and L.Yu. Rusin, Impulsive model of dissociative ionisation of molecules in collisions, *Teor. Eksp. Khim.*, v.17, 579 (1981)
157. E. E. Nikitin, Asymmetry of inelastic scattering of atoms in magnetic fields, *Optika i Spectr.*, v. 53, 619 (1982)
158. E. E. Nikitin, Nonadiabatic elementary chemical reactions, in: *Advances in Theoretical Chemical Physics*, M.: Nauka, 11 (1982)
159. E. E. Nikitin, Many-trajectory semiclassical approximation in the theory of inelastic scattering of slow heavy particles, *Khim. Fiz.*, v.1, 867 (1982)
160. E. E. Nikitin, A. I. Shushin, J. Grosser, and A. E. de Vries, Study of the mechanism of chemi-ionisation in collisions of II b-group atoms with fluorine atoms, *Khim. Fiz.*, v.1, 457 (1982).
161. E. E. Nikitin, Nonadiabatic transitions between merging potential curves, *Khim. Fiz.*, v.1, 721 (1982).
162. E. E. Nikitin, Nonadiabatic effects in slow atomic collisions; many-trajectory semiclassical approximation, in: *New Horizons in Quantum Chemistry*, eds. P.-O. Lowdin and B. Pullman; Reidel, Dordrecht, p. 117 (1983)
163. E. I. Dashevskaya, E. E. Nikitin, and S. Ya. Umanski, Asymmetry in the cross sections for transitions between magnetic sublevels in atomic collisions, *Optika i Spectr.* v.55, 1092 (1983)
164. E. I. Dashevskaya, E. E. Nikitin, and S. Ya. Umanski, Asymmetry in the cross sections for transitions between magnetic sublevels of the state $j = 1$ in atomic collisions, *Khim. Fiz.*, v.3, 627 (1984)
165. E. E. Nikitin, Depolarization interferential structure of differential cross sections for scattering of atoms in degenerate state. *Khim. Fiz.* v.3, 1219 (1984)
166. E. E. Nikitin, Comparison problem for depolarization of atoms with the intrinsic angular momentum $j = 1$ upon scattering through small angles, *Khim. Fiz.*, v.3, 792 (1984)
167. E. E. Nikitin, Azimuthal asymmetry in scattering of polarized atoms in the P-state, *Khim. Fiz.*, v.4, 310 (1985).

168. A. I. Maergoiz, E. E. Nikitin, and L. Yu. Rusin, Dynamics of ion formation in collision-induced dissociations of diatomic molecules, in: *Khimiya Plasmy*, M.: Atomizdat v.11, 3 (1985)
169. E. E. Nikitin, On a mechanism of collision-induced polarization transfer in atoms, *Optika i Spectr.* v.58, 964 (1985)
170. E. I. Dashevskaya and E. E. Nikitin, Creation of polarization in atoms with $j = 1$ upon collisions in beams, *Khim. Fiz.*, v.4, 1174 (1985)
171. E. I. Dashevskaya and E. E. Nikitin, Classical dynamics of atomic magnetic moments for quadratic interaction with an external magnetic field, *Khim. Fiz.*, v.5, 457 (1986)
172. B. Friedrich, S. Pick, L. Hladek, Z. Herman, E. E. Nikitin, A. I. Reznikov, and S. Ya. Umanski, Dynamics of charge transfer $\text{Ar} + \text{He} \rightarrow \text{Ar} + \text{He}$ at low collision energies: Comparison of experimental results with quasiclassical calculations of the differential cross sections, *J. Chem. Phys.*, v.84, 807 (1986).
173. E. E. Nikitin, A. I. Reznikov, and S. Ya. Umanski, Two-level model of charge exchange with Coulomb interaction in one of the channels: Quantum and quasiclassical cross sections in the weak-coupling limit, *Zh. Eksp. Teor. Fiz.*, v.91, 1590 (1986)
174. E. E. Nikitin, Quasimolecular description of polarization transfer of atoms in scattering through classical angles, *Khim. Fiz.*, v.5, 1592 (1986)
175. E. E. Nikitin and M. Ya. Ovchinnikova, An analytical model of vibrational-rotational energy transfer for highly anisotropic interaction between an atom and a diatomic molecule, *Khim. Fiz.*, v.5, 291 (1986)
176. E. E. Nikitin, Sterical factor for the rate constant of a VR-process involving a 2D-rotor, *Khim. Fiz.*, v.5, 1155 (1986)
177. D. V. Shalashilin, M. Ya. Ovchinnikova, and E. E. Nikitin, Vibronic description of atom-molecule charge-transfer in the $\text{N}_2\text{-Ar}$ system, *Khim. Fiz.*, v.5, 750 (1986)
178. E.E.Nikitin, Dynamics of elementary chemical processes, *Khim. Fiz.*, v.6, 1603 (1987)
179. E. E. Nikitin and L. Yu. Rusin, Dynamics of exchange and abstraction reactions in hydrogen-halide systems, *Khim. Fiz.*, v.6, 1643 (1987)
180. E. E. Nikitin, M. Ya. Ovchinnikova, and D. V. Shalashilin, Study of the charge transfer dynamics of Ar-N_2 by surface hopping in the vibronic representation, *Khim. Fiz.*, v.6, 573 (1987)

181. E. E. Nikitin, M. Ya .Ovchinnikova, and D. V Shalashilin, Vibronic approach to the dynamics of charge transfer in the Ar-N₂ system, Chem. Phys., v.111, 313 (1987)
182. E. E. Nikitin, Generalized Landau-Zener and Landau-Teller models in the theory of molecular collisions, Chemistry Reviews, Soviet Scientific Reviews, Section B, v.9, 1 Harwood Academic (1987)
183. E. I. Dashevskaya and E. E. Nikitin, Polarization transfer cross sections in the random phase approximation, Khim. Fiz. v.6, 3 (1987)
184. E. I. Dashevskaya and E. E. Nikitin, Quasiclassical integral polarisation transfer and relaxation cross sections in atomic collisions, Optika i Spekr., v.62, 742 (1987)
185. E. E. Nikitin, A. I. Reznikov, and S. Ya. Umanski, Quasiclassical interpretation of the charge transfer of Ar to He at low energies, Khim. Fiz., v.6, 721 (1987)
186. E. E. Nikitin, Effect of rotation of homonuclear diatomic molecules on the efficiency of VT-processes, Khim. Fiz., v.7, 867 (1988)
187. E. E. Nikitin and A. I. Reznikov, Theoretical total cross section and branching ratio for Kr ions produced in low-energy charge-exchange collisions of Kr with He, Chem. Phys. Lett., v.149, 212 (1988)
- 188 E .E. Nikitin, A. I. Reznikov, and S. Ya. Umanski, Cross sections for charge exchange of atoms with multiple-charged ions: A comparative study of the processes Ar, Kr + He → Ar, Kr + He in the eV energy range, Mol. Phys., v. 65, 1301 (1988)
189. E. I. Dashevskaya and E. E. Nikitin, Line shape of the magnetic resonance signal for a non-equidistant structure of Zeeman levels, Optika i Spectr., v.64, 732 (1988)
190. E. E. Nikitin, Correlation diagrams of roronic states of diatoms, Khim. Fiz., v.8, 1155 (1989)
191. E. E. Nikitin and A. I. Reznikov, Intramultiplet population of Kr ions in charge transfer of Kr to He at low energies, Khim. Fiz., v.8, 38 (1989)
192. E. E. Nikitin, S. Ya. Umanski, and D. V. Shalashilin, Vibration-to-rotation energy transfer in collisions of hydrogen halide molecules with noble gas atoms, Khim. Fiz., v.8, 1011 (1989).
193. E. E. Nikitin, A. I. Osipov, and S. Ya. Umanski, Vibration-to-translation energy exchange in collisions of homonuclear diatomic molecules, in: Khimiya Plasmy, v.15, 3 (1989), Moscow, Atomizdat, ed. B. M. Smirnov
194. E. E. Nikitin and M. Ya. Ovchinnikova, Asymmetric rotor model in the description of the rotational structure of overtone bands in the NH₃ spectrum, Optika i Spekr. v. 67, 47 (1989)

195. E. E. Nikitin and M. Ya. Ovchinnikova, Optimal trajectory approach in the theory of the photodissociation of thermally excited molecules. *Chem. Phys.*, v.138, 45 (1989)
196. E. I. Dashevskaya and E. E. Nikitin, Scattering asymmetry for atoms of helicopter polarization: manifestation of slipping. *Optika i Spectr.*, v.68, 1006 (1990)
197. E. E. Nikitin, Parity conservation and statistical theories of unimolecular reactions, *Khim. Fiz.*, v.9, 723 (1990)
198. E. E. Nikitin and J. Troe, Correlation diagrams for accurate adiabatic channel potentials of atom+linear molecule reaction system, *J. Chem. Phys.*, v.92, 6594 (1990)
199. E. E. Nikitin and J. Troe, Correlation diagrams of adiabatic channel potentials for the system atom + linear molecule, *Khim. Fiz.*, v.9, 1171 (1990)
200. E. E. Nikitin and M. Ya. Ovchinnikova, Quasiclassical theory of the photodissociation of thermally excited molecules, *Khim. Fiz.*, v.9, 1486 (1990)
201. E. I. Dashevskaya, E. E. Nikitin, and J. Troe, Long-range nonadiabatic effects in statistical adiabatic channel models: dynamic orientation of fragments formed in the decomposition of long-lived triatomic complexes. *J. Chem. Phys.*, v.93, 7803 (1990)
202. E. E. Nikitin, *Chemische Elementarreaktionen - Statik und Dynamik*, Nova Acta Leopoldina NF 63, v.272, 145 (1990)
203. A. I. Maergoiz, E. E. Nikitin, and J. Troe, Adiabatic channel potential curves for two linear dipole rotors: I. Classification of states and numerical calculations for identical rotors, *J. Chem. Phys.*, v.9, 5117 (1991)
204. E. I. Dashevskaya, E. E. Nikitin, and J. Troe, Dynamic rotational polarization of diatomic fragments in the decomposition of triatomic complexes, *Khim. Fiz.*, v.10, 9 (1991)
205. A. I. Maergoiz, E. E. Nikitin, and J. Troe, Adiabatic channel potential curves for two linear dipole rotors: II. Analytic representation of channel potentials and rate expressions, *Z. Phys. Chem.*, v.172, 129 (1991)
206. E. I. Dashevskaya, R. Düren, and E. E. Nikitin, Semiclassical roronic description of right-left scattering asymmetry of helicopter-oriented atoms, *Chem. Phys.*, v.149, 341 (1991)
207. E. E. Nikitin, On the Landau method of calculating quasiclassical matrix

- elements, in: Mode Selective Chemistry, Proceedings of the 24 Jerusalem Symposium on Quantum Chemistry and Biochemistry, Eds. J. Jortner, Kluwer Academic Publishers, Dordrecht, p.401, 1991.
208. E. E. Nikitin and D. V. Shalashilin, Quasiclassical model of vibrational-rotational energy exchange, *Khim. Fiz.*, v.11, 1471 (1992)
- 209 Y. Rudich, R. J. Gordon, E. E. Nikitin, and R. Naaman, Rotational relaxation in a free expansion of HCl, *J. Chem. Phys.*, v.96, 4423 (1992)
210. E. I. Dashevskaya and E. E. Nikitin, Hard sphere model for two-state differential inelastic scattering, *Chem. Phys.*, v.163, 75 (1992)
211. E. E. Nikitin, Resonance excitation transfer between two dipole rotors for high rotational quantum numbers, *Chem. Phys. Lett.*, v.196, 37 (1992)
- 212 E. I. Dashevskaya, E. E. Nikitin, and J. Troe, Nonadiabatic effects in the statistical adiabatic channel model: the atom + diatom case, *Chem. Phys.*, v.97, 3318 (1992)
213. E. E. Nikitin and A. I. Resnikov, Charge transfer of $N^{++}(2P)$ or $He(1s^2)$ at low energies, *Khim. Fiz.*, v.11, 163 (1992)
214. A. I. Maergoiz, E. E. Nikitin, and J. Troe, Correlation diagrams and symmetry properties of adiabatic states of a system composed of two linear dipole molecules, *Khim. Fiz.*, v.11, 814 (1992)
215. A. I. Maergoiz, E. E. Nikitin, and J. Troe, Calculation of cross sections and rate constants for capture of two identical linear dipole molecules, *Khim. Fiz.*, v.12, 841 (1992)
216. A. I. Maergoiz, E. E. Nikitin, and J. Troe, Diabatic/adiabatic channel correlation diagrams for two linear rotors with long-range dipole-dipole interaction, *Z. Phys. Chem.*, v.176, 1 (1992)
217. E. E. Nikitin and A. I. Reznikov, Cross sections for charge exchange of atoms on multiple-charged ions: charge exchange of N with He in the eV energy range, *Mol. Phys.*, v.77, 563 (1992)
218. E. E. Nikitin, Resonance excitation transfer between two dipole rotors with high rotational quantum numbers, *Khim. Fiz.*, v 11, 1463 (1992)
219. E. I. Dashevskaya and E. E. Nikitin, Two-state differential inelastic scattering of hard spheres, *Khim. Fiz.*, v.11, 1603 (1992)
220. E. E. Nikitin, C. Noda, and R. N. Zare, On the quasiclassical calculation of fundamental and overtone intensities, *J. Chem. Phys.*, v.89, 46 (1993)

221. M. Willberg, M. Gutmann, E. E. Nikitin, and A. H. Zewail, A simple description of vibrational predissociation by a full-collision approach, *Chem. Phys Lett.*, v.201, 506 (1993)
222. E. I. Dashevskaya and E. E. Nikitin, Comparison equation approach to the locking of electronic angular momentum to the molecular axis in atomic collisions, *J. Chem. Soc. Faraday Trans.*, v.89, 1567 (1993)
223. E. E. Nikitin, Optimal trajectory approach in the theory of collisional vibrational relaxation of diatomic molecules, in: *Dynamical Processes in Molecular Physics, First EPS Southern European School of Physics*, ed. G. Delgado-Barrio, Institute of Physics Publishing Ltd, Bristol and Philadelphia, p. 55, 1993
224. E.E.Nikitin, Manifestation of the non-sudden locking in the differential scattering of polarized atoms, in: *European Workshop on Collisions involving Laser Excited Atoms*, H. C. O. Tryk, Kobenhavn, p. 108, 1993
225. E. I. Dashevskaya, E. E. Nikitin, and I. Oref, On the adiabaticity restrictions in the collisional energy transfer from highly excited polyatomic molecules, *J. Phys. Chem.*, v.97, 9397 (1993)
226. A. Berengolts, E. I. Dashevskaya, and E. E. Nikitin, Computational study of the locking of electronic angular momentum in diatomic quasimolecules, *J. Phys. B*, v.26, 3861 (1993)
227. E. E. Nikitin and L. P. Pitaevskii, Imaginary time and the Landau method of calculating quasiclassical matrix elements, *Physics-Uspekhi*, v.36, 851 (1993).
228. E. E. Nikitin, Vibrational relaxation and vibrational predissociation as dynamical tunneling processes, *Uspekhi Khimii*, v.62, 3 (1993) (*Russian Chemical Reviews*, v.62, 1, (1993))
229. A. I. Maergoiz, E. E. Nikitin, and J. Troe, Diagrams of diabatic/adiabatic channels for two linear rotors coupled by long-range dipole-dipole interaction. *Khim. Fiz.*, v.12, 3 (1993)
230. E.E.Nikitin, On the accuracy of IOSA in the calculation of vibrational relaxation rates, *Khim. Fiz.*, v.12, 187 (1993)
231. Y. Karni and E. E. Nikitin, Recovery of the Landau matrix elements from the classical Fourier components: one-dimensional dissociating oscillator, *J. Chem. Phys.*, v.100, 2027 (1994)
232. Y.Karni and E..E.Nikitin, Vibrational predissociation rate from the dynamics of the full collision: a test of the Landau method against the exact results, *J. Chem. Phys.*, v.100, 8065 (1994)

233. E. E. Nikitin and L. Pitaevski, Calculation of the Landau quasi-classical exponent from the Fourier components of classical functions, *Phys. Rev. A*, v.49, 695 (1994)
234. E.E.Nikitin, J.Troe, and V.G.Ushakov, Classical simulation of the near-resonance rotational energy transfer between two dipole rotors, *J. Phys. Chem.*, v.98, 3257 (1994)
235. E. E. Nikitin and R. N. Zare, Correlation diagrams for Hund's coupling cases in diatomic molecules with high rotational angular momentum, *Mol. Phys.*, v.82, 85 (1994)
236. E. E. Nikitin and K. Taulbjerg, Effect of the rotational coupling on charge transfer into Coulomb channels, *J. Phys. B*, v.27, 2259 (1994)
237. Y. Karni and E. E. Nikitin, Adiabatically corrected quasiclassical model for the vibrational predissociation of van der Waals complexes, *Chem. Phys.*, v.191, 235 (1995)
238. E .E. Nikitin, J. Troe, and V. G. Ushakov, Adiabatic and post-adiabatic channel description of atom-diatom long-range half-collision dynamics: interchannel radial coupling for low-rank anisotropy, *J. Chem. Phys.*, v.102, 4101 (1995)
239. A. Berengolts, E. I. Dashevskaya, E. E. Nikitin, and J.Troe, Dynamic polarization of diatomic fragments formed in the decomposition of statistical triatomic complexes. I. Semiclassical study, *Chem. Phys.*, v.195, 271 (1995)
240. A. Berengolts, E. I. Dashevskaya, E. E. Nikitin, and J. Troe, Dynamic polarization of diatomic fragments formed in the decomposition of statistical triatomic complexes. II. Classical simulation, *Chem. Phys.*, v.195, 283 (1995)
241. K. Ohmori, T. Kurosawa, H. Chiba, M. Okunishi, K. Ueda, Y. Sato, and E. E. Nikitin, Far-wing excitation study on the transit region of Hg intra-multiplet processes in collisions with N₂ and CO, *J. Chem. Phys.*, v.102, 7341 (1995)
242. A. I. Maergoiz, E. E. Nikitin, and J. Troe, Statistical adiabatic channel calculation of accurate low-temperature rate constants for the recombination of OH radicals in their ground rovibronic state, *J. Chem. Phys.*, v.103, 2083 (1995)
243. E. I. Dashevskaya, E. E.Nikitin, and I.Oref, The mean energy transfer within the sequential direct encounter model: the temperature dependence of $\langle\Delta E\rangle$, *J. Phys. Chem.*, v.99, 10797 (1995)
244. I. Koifman, E. I. Dashevskaya, E. E. Nikitin, and J. Troe, Rotational gateway for the vibrational energy transfer from excited nonlinear triatomic molecules, *J. Phys. Chem.*, v.99, 15348 (1995)
245. E. I. Dashevskaya, F. Masnou-Seeuws, and E. E. Nikitin, The locking

phenomenon in scattering of P-state atoms: I. Quasiclassical theory of interference effects for waves scattered by two different potentials, *J. Phys. B*, v.29, 395 (1996)

246. E. I. Dashevskaya, F. Masnou-Seeuws, and E. E. Nikitin, The locking phenomenon in scattering of P-state atoms: II. Quasiclassical interpretation of the high-frequency interference pattern in the differential scattering of Na* on Ne, *J. Phys. B*, v.29, 415 (1996)

247. E. E. Nikitin, Ch. Ottinger, and D. V. Shalashilin, Test of the asymptotic method as applied to atom-diatom interaction potentials, *Z. Phys. D - Atoms, Molecules and Clusters*, v.36, 257 (1996)

248. A. I. Maergoiz, E. E. Nikitin, and J. Troe, Adiabatic channel study of the capture of nitrogen and oxygen molecules by an ion: Effect of nuclear symmetry and spin-spin interaction, *Z. Phys. D - Atoms, Molecules and Clusters*, v.36, 339 (1996)

249. Ch. Zhu, H. Nakamura, and E.E.Nikitin, Semiclassical analysis of resonance states induced by conical intersection, *J. Chem. Phys.*, v.104, 7059 (1996)

250. R. D. Brown, J. E. Boggs, R. L. Hilderbrandt, K. F. Lim, I. M. Mills, E. E. Nikitin, M. H. Palmer, and A. F. McNaught, Acronyms used in Theoretical Chemistry, *Pure and Appl.Chem.*, v.68, 387 (1996)

251. E. E. Nikitin, Adiabatic and diabatic collision processes at low energies, in: *Atomic, Molecular and Optical Physics Handbook*, ed. G. W. F. Drake, American Institute of Physics, Woodbury, New York, p.561, 1996.

252. A. I. Maergoiz, E. E. Nikitin, J. Troe, and V. G. Ushakov, Classical trajectory and adiabatic channel study of the transition from adiabatic to sudden capture dynamics. I. Ion-dipole capture, *J. Chem. Phys.*, v.105, 6263 (1996)

253. A. I. Maergoiz, E. E. Nikitin, J. Troe, and V. G. Ushakov, Classical trajectory and adiabatic channel study of the transition from adiabatic to sudden capture dynamics. II. Ion-quadrupole capture, *J. Chem. Phys.*, v.105, 6270 (1996)

254. A. I. Maergoiz, E. E. Nikitin, J. Troe, and V. G. Ushakov, Classical trajectory and adiabatic channel study of the transition from adiabatic to sudden capture dynamics. III. Dipole-dipole capture, *J. Chem. Phys.*, v.105, 6277 (1996)

255. I. Rosenblum, E. I. Dashevskaya, E. E. Nikitin, and I. Oref, On the sampling of microcanonical distributions for rotating harmonic triatomic molecules, *Chem. Phys.*, v.213, 243 (1996)

256. Y. Karni and E.E.Nikitin, Vibrational predissociation: quasiclassical tunneling and classical diffusion, *Mol. Phys.*, v.89, 1327 (1996)

257. E. E. Nikitin, Pathways of vibrational relaxation of diatoms in collisions with atoms: Manifestation of the Ehrenfest adiabatic principle, in: *Gas Phase Chemical*

- Reaction System, Springer, Berlin- Heidelberg, eds. J. Wolfrum, H. - R. Volpp, R. Rannacher, J. Warnatz, p 231, 1996,
258. E. I. Dashevskaya, E. E. Nikitin, F. Perales, and J. Baudon, Qualitative analysis of the right-left scattering asymmetry in Ne^+Ar low-energy collisions, *J. Phys. B*, v.30, 703 (1997)
259. E. E. Nikitin and J. Troe, Quantum and classical calculations of adiabatic and nonadiabatic capture rates for anisotropic interactions, *Ber. Bunsenges. Phys. Chem.*, v.101, 445 (1997)
260. E. E. Nikitin, Double cone problem revisited: Effect of the geometric phase on broad semiclassical resonances, *J. Chem. Phys.*, v.107, 6748 (1997)
261. I. Rosenblum, E. I. Dashevskaya, E. E. Nikitin, and I. Oref, Effect of vibrational-rotational energy partitioning on energy transfer in atom-triatomic molecule collisions, *Mol. Eng.*, v.7, 169 (1997)
262. E. I. Dashevskaya and E. E. Nikitin, Quasiclassical approximation in the theory of scattering of polarized atoms, in: *Atomic Physics Methods in Modern Research, Lecture Notes in Physics*, v.499, Springer, eds: K. Jungmann, J. Kowalski, I. Reinhard, F. Traeger, p 185; 1997 .
263. T. Kurosawa, K. Ohmori, H. Chiba, M. Okunishi, K. Ueda, Y. Sato, A. Z. Devdariani, and E. E. Nikitin, Collision-induced absorption in mercury rare-gas collisions, *J. Chem. Phys.*, v.108, 8101 (1998)
264. K. Amano, K. Ohmori, T. Kurosawa, H. Chiba, M. Okunishi, K. Ueda, Y. Sato, A. Z. Devdariani, and E. E. Nikitin, c-X laser excitation spectrum of the Hg-Ar vdW complex, *J. Chem. Phys.*, v.108, 8110 (1998)
265. A. I. Maergoiz, E. E. Nikitin, J. Troe, and V. G. Ushakov, Classical trajectory and adiabatic channel study of the dynamics of capture and unimolecular bond fission, IV Valence interaction between atoms and linear rotors. *J. Chem. Phys.*, v.108, 5265 (1998)
266. A. I. Maergoiz, E. E. Nikitin, J. Troe, and V. G. Ushakov, Classical trajectory and adiabatic channel study of the dynamics of capture and unimolecular bond fission. V. Valence interaction between two linear rotors, *J. Chem. Phys.*, v.108, 5265 (1998)
267. A. Devdariani, E. Tchesnokov, E. I. Dashevskaya, and E. E. Nikitin, Quasiclassical study of differential inelastic scattering of oriented $\text{Ca}(4s5p, ^1P_1)$ atoms on He, *Phys. Rev. A*, v.57, 4472 (1998)
268. A. Alijah and E. E. Nikitin, Fast quantum, semiclassical and classical dynamics near the conical intersection, *Mol. Phys.*, v.96, 1399 (1999)

269. D. Schroeder, I. Oref, J. Hrusak, T. Weiske, E. E. Nikitin, W. Zummack and H. Schwarz, Revisiting the mechanism of the unimolecular fragmentation of protonated fluorobenzene, *J. Phys. Chem. A*, v.103, 4609 (1999)
270. F. Di Giacomo, F. A. Gianturco, E. E. Nikitin, and F. Schneider, On proton-water charge transfer processes: a follow-up study using CI calculations, *J. Phys. Chem.*, v.103, 7116 (1999)
271. E. E. Nikitin, Nonadiabatic transitions: What we learned from old masters and how much we owe them, *Ann. Rev. Phys. Chem.*, v.50, 1 (1999)
272. K. Ohmori, T. Kurosawa, H. Chiba, M. Okunishi, K. Ueda, Y. Sato, A. Devdariani, and E. E. Nikitin, Far-wing excitation study on the transition region of metastable mercury atom collisions: $\text{Hg}(^6\text{P}_2)+\text{N}_2$ and CO, *Chem. Phys. Lett.*, v.315, 411 (1999)
273. E. I. Dashevskaya, I. Litvin, E. E. Nikitin, I. Oref, and J. Troe, Classical diffusion model of vibrational predissociation of van der Waals complexes: truncated mean first passage time approximation, *Phys. Chem. Chem. Phys.*, v.2, 2251 (2000)
274. E. I. Dashevskaya and E. E. Nikitin, Correlation of adiabatic states between perturbed rotor and Renner-Teller limits for a closed-shell ion + open shell diatom system, *Z. Phys. Chem.*, v.214, 1001 (2000)
275. E. I. Dashevskaya and E. E. Nikitin, On the relation between elastic and inelastic scattering lengths for vibrational relaxation in atom-diatom collisions. *Chem. Phys. Lett.*, v.328, 119 (2000)
276. E. I. Dashevskaya and E. E. Nikitin, Quantum suppression and enhancement of the quasiclassical Landau-Lifshitz matrix elements. Application to the inelastic H_2 -He scattering at ultra-low energies, *Phys. Rev. A*, v.63, 2711 (2000)
277. E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Classical diffusion model of vibrational predissociation of van der Waals complexes: II. Comparison with trajectory calculations and analytical approximations, *Phys. Chem. Chem. Phys.*, v.3, 2315 (2001)
278. E. I. Dashevskaya, I. Litvin, E. E. Nikitin, I. Oref, and J. Troe, Classical diffusion model of vibrational predissociation of van der Waals complexes: III. Comparison with quantum calculations, *Phys. Chem. Chem. Phys.*, v.4, 3330 (2002)
279. A. I. Maergoiz, E. E. Nikitin, J. Troe, and V. G. Ushakov, Classical trajectory and adiabatic channel study of the dynamics of capture and unimolecular bond fission. VI. Properties of the transitional modes and specific rate constants $k(E,J)$, *J. Chem. Phys.*, v.117, 4201 (2002)
280. E. I. Dashevskaya, J. A. Kunc, E. E. Nikitin, and I. Oref, Two-channel vibrational relaxation of H_2 by He: a bridge between the Landau-Teller and Bethe-Wigner limits, *J. Chem. Phys.*, v.118, 3141 (2003)

281. E. I. Dashevskaya, E. E. Nikitin, K. Ohmori, M. Okunishi, I. Oref, and Y. Sato, Energy dependence of the intramultiplet mixing cross section in Hg–N₂ collisions: conical intersection mechanism, indication of tunneling and interference, *Phys. Chem. Chem. Phys.*, v.5, 1198 (2003)
282. E. I. Dashevskaya, I. Litvin, A. I. Maergoiz, E. E. Nikitin, and J. Troe, Low-temperature behavior of capture rate constants for inverse power potentials, *J. Chem. Phys.*, v. 118, 7313 (2003)
283. F. Di Giacomo, F. Schneider, and E. E. Nikitin, Conical intersections between the three lowest adiabatic potential energy surfaces of the oxonium ion, *Chem. Phys. Lett.*, v.373. 258 (2003)
284. E. I. Dashevskaya, E. E. Nikitin, E. Abraham, J. Alnis, M. Auzinsh, B. R. Furneaux, M. Keil, Ch. McRaven, N. Shafer-Ray, and R. Waskowsky, Prediction and measurements of the velocity-dependent throughput of a magnetic octupole velocity filter including nonadiabatic effects, *Phys. Rev. A*, v.68, 023403 (2003)
285. K. Ohmori, Y. Sato, E. E. Nikitin, and S. A. Rice, High-precision molecular wave-packet interferometry with Hg-Ar dimers, *Phys. Rev. Lett.*, v.91, 243003 (2003)
286. E. I. Dashevskaya, E. E. Nikitin, M. Okunishi, K. Ohmori, and Y. Sato, Nonadiabatic transitions in the conical intersection in Hg–N₂ collisions, *Khim. Fiz.*, v.23, 93 (2004)
287. R. Côté, E. I. Dashevskaya, E. E. Nikitin, and J. Troe, Quantum enhancement of vibrational predissociation near the dissociation threshold, *Phys. Rev. A*, v.69, 012704 (2004)
288. E. I. Dashevskaya, E. Nikitin, I. Oref, and J. Troe, Vibrational relaxation of diatoms in collisions with atoms at very low energies, in: *Theory of Chemical Reaction Dynamics*, eds. A. Lagana, G. Lendvay, Kluwer, Dordrecht, Netherlands, p.413, 2004
289. E. E. Nikitin and J. Troe, Vibrational predissociation: quasiclassical tunneling through a classical chaotic sea, in: *Theory of Chemical Reaction Dynamics*, eds. A. Lagana, G. Lendvay, Kluwer, Dordrecht, Netherlands, p.381, 2004
290. A. I. Maergoiz, E. E. Nikitin, J. Troe, and V. G. Ushakov, Asymptotic interaction between open shell partners operative in low-temperature complex formation for the H+O₂: and O + OH systems, in: *Theory of Chemical Reaction Dynamics*, eds. A. Lagana, G. Lendvay, Kluwer, Dordrecht, Netherlands, p.21, 2004

291. E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Quantum scattering and adiabatic channel treatment of the low-energy and low-temperature capture of a rotating quadrupolar molecule by an ion, *J. Chem. Phys.*, v.120, 9989 (2004).
292. E. I. Dashevskaya, I. Litvin, E. E. Nikitin, I. Oref, and J. Troe, Axially–nonadiabatic channel treatment of low–energy capture in ion–rotating diatom collisions, *J. Phys. Chem. A*, v.108, 8703 (2004).
293. E. E. Nikitin and J. Troe, Dynamics of ion-molecule complex formation at very low energies and temperatures, *Phys. Chem. Chem. Phys.*, v.7, 1540 (2005)
294. F. Di. Giacomo and E. E. Nikitin, Majorana formula and the Landau-Zener–Stückelberg treatment of the avoided crossing problem, *Usp. Fiz. Nauk*, v.175, 545 (2005)
295. E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Rates of complex formation in collisions of rotationally–excited homonuclear diatoms with ions at very low temperatures. application to hydrogen isotopes and hydrogen–containing ions, *J. Chem. Phys.*, v.122, 184311 (2005)
296. E. I. Dashevskaya, I Litvin, and E. E. Nikitin, Gyroscopic effects in low-energy classical capture of a rotating quadrupolar diatom by an ion, *J. Phys. Chem. A*, v.110, 2786 (2006)
297. E. E. Nikitin, Adiabatic and diabatic collision processes at low energies, in: *Atomic, Molecular and Optical Physics Handbook*, ed. G. W. F. Drake, American Institute of Physics, Woodbury, New York, p.741, 2006
298. E. E. Nikitin and J. Troe, Restoring detailed balance in the Landau-Teller probabilities for collision-induced vibrational transitions, *Phys. Chem. Chem. Phys.*, v.8, 2012 (2006)
299. E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Semiclassical extension of the Landau-Teller theory of collisional energy transfer, *J. Chem. Phys.*, v.125, 154315 (2006)
300. E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Low temperature capture of open shell dipolar molecules by ions: the capture of rotationally selected $\text{NO}(^2\Pi_{1/2})$ by C^+ , *Phys. Chem. Chem. Phys.*, v.9, 1559 (2007)
301. E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Interpretation of the vibrational relaxation of H_2 in H_2 within the semiclassical effective mass approach, *J. Chem. Phys.*, v.127, 114317 (2007)
302. E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Modelling low-energy electron-molecule capture processes, *Phys. Chem. Chem. Phys.*, v.10, 1270 (2008)

303. E. E. Nikitin and J. Troe, 70 years of Landau-Teller theory for collisional energy transfer. Semiclassical three-dimensional generalizations of the classical collinear model, *Phys. Chem. Chem. Phys.*, v.10, 1483 (2008)
304. M. Auzinsh, E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Nonadiabatic transitions between lambda-doubling states in the capture of a diatomic molecule by an ion, *J. Chem. Phys.*, v.128, 184304 (2008)
305. A.I.Maergoiz, E.E.Nikitin, and J.Troe., Capture of asymmetric top dipolar molecules by ions: Rate constants for capture of H₂O, HDO, and D₂O by arbitrary ions, *Int. J. Mass Spect.*, v.280, 42 (2009)
306. M. Auzinsh, E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Lambda-doublet specificity in the low-temperature capture of NO in low rotational states by C⁺ ions, *J. Chem. Phys.*, v.130, 014304 (2009)
307. E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Threshold behavior and analytical fitting of partial capture probabilities for attractive R^{-n} potentials, *Phys. Chem. Chem. Phys.*, v.11, 9364 (2009)
308. E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Quantum and classical fall of a charged particle onto a stationary dipolar target, *J. Phys. Chem. A*, v.113, 14212 (2009)
309. E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Locking of intrinsic angular momenta in the capture of quadrupole diatoms by ions, *Mol. Phys.*, v.108, 873 (2010)
310. E. E. Nikitin and J. Troe, Electron capture by finite-size polarizable molecules and clusters, *Phys. Chem. Chem. Phys.*, v.12, 9011 (2010)
311. E. E. Nikitin and J. Troe, Mutual capture of dipolar molecules at low and very low energies: I. Approximate analytical treatment, *J. Phys. Chem. A*, v.114, 9762, (2010)
312. E. E. Nikitin and J. Troe, Electron capture by finite-size polarizable molecules and clusters, *Phys. Chem. Chem. Phys.*, v.12, 9011 (2010)
313. E. I. Dashevskaya, I. Litvin, E. E. Nikitin and J. Troe, Electron capture by polarizable dipolar targets: numerical and analytically approximated capture probabilities, *J. Phys. Chem. A*, v.115, 6825.(2011)
314. M. Auzinsh, E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Mutual capture of dipolar molecules at low and very low energies. II. Numerical study, *J. Phys. Chem. A*, v.115, 5027 (2011)
315. E. E. Nikitin and J. Troe, On the kinetic modeling of electron attachment to polyatomic molecules, *Mol. Phys.*, v.110, 1627 (2012)

316. M. Auzinsh, E. I. Dashevskaya, E. E. Nikitin, and J. Troe, Quantum capture of charged particles by rapidly rotating symmetric top molecules with small dipole moments. Analytical comparison of the fly-wheel and adiabatic channel limits, *Mol. Phys.*, v.111, 2003 (2013)
- 317 M. Auzinsh, E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Quantum effects in the capture of charged particles by dipolar polarizable symmetric top molecules. I. General axially-nonadiabatic channel treatment, *J. Chem. Phys.*, v.139, 084311 (2013)
- 318 M. Auzinsh, E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Quantum effects in the capture of charged particles by dipolar polarizable symmetric top molecules. II. Interplay between electrostatic and gyroscopic interactions, *J. Chem. Phys.*, v.139, 144315 (2013)
319. A. I Maergoiz, E. E. Nikitin, and J. Troe, Electronic non-adiabatic effects in low temperature radical-radical reactions. I. $C(^3P) + OH(^2\Pi)$, *J. Chem. Phys.*, v.141, 044302 (2014)
320. E. I. Dashevskaya, E. E. Nikitin, and J. Troe, The vibrational relaxation of NO in Ar: tunneling in a curve-crossing mechanism, *Phys. Chem. Chem. Phys.*, v.17, 151 (2015)
321. E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Further insight into the tunneling contribution to the vibrational relaxation of NO in Ar, *J. Chem. Phys.*, v.142, 164310 (2015)
322. E. I. Dashevskaya, I. Litvin, and E. E. Nikitin, On the relation between population kinetics and state-to-state rate coefficients for vibrational energy transfer, *Z. Phys. Chem.*, v.229, 1561 (2015)
323. E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Relocking of intrinsic angular momenta in collisions of diatoms with ions: capture of $H_2(j=0,1)$ by H_2^+ , *J.Chem.Phys.* *J.Chem.Phys.*, v. 145, 244315 (2016)
324. E. E. Nikitin, and J. Troe, On the Bethe-Wigner-Shapiro limit of the rate coefficient for the capture of rotating quadrupolar polarizable diatom by an ion, *Mol.Phys.*, v.115, No.4 (2017)
325. E. I. Dashevskaya, E. E. Nikitin, and J. Troe, Uniform Airy approximation for nonadiabatic transitions in a curve-crossing weak-coupling case. *Z.Phys.Chem.*, v.232, 311 (2018)
326. E. I. Dashevskaya, I. Litvin, E. E. Nikitin, and J. Troe, Electronically nonadiabatic mechanism of the vibrational relaxation of no in ar : rate coefficients from *ab initio* potentials and asymptotic coupling, *J.Chem.Phys.*, v.149 (2018)