

# B.I. Shklovskii

## LIST OF PUBLICATIONS

### MONOGRAPHY

1. B.I. Shklovskii, A.L.Efros, Electronic properties of doped semiconductors, Springer, Heidelberg, 1984.

### REVIEW PAPERS

2. B.I. Shklovskii, Hopping conduction in lightly doped semiconductors, Fiz. Tekh. Poluprov. 6, 1197 (1972). (English transl.: Sov. Phys.-Semicond. 6, 1053 (1972))
3. B.I. Shklovskii, A.L.Efros, Percolation theory and conductivity of disordered systems, Uspekhi Fiz. Nauk 117, 401 (1975)
4. B.I. Shklovskii, A.L. Efros, Impurity band structure of lightly doped semiconductors, Fiz. Tekh. Poluprov 14, 825 (1980) (Engl. transl.: Sov. Phys.-Semicond. 14, 487 (1980))
5. A.L. Efros, B.I. Shklovskii, "Electron-Electron interaction in disordered systems with localized states," in "Electron-Electron interaction in disordered systems, ed. by A.L. Efros, M. Pollak. North-Holland, Amsterdam 1985
6. B.I. Shklovskii, B.Z. Spivak, Scattering and interference phenomena in variable range hopping conduction, in: "Hopping conduction in semiconductors," ed. by M. Pollak and B.I. Shklovskii, North-Holland, Amsterdam /1990.

### ORIGINAL PAPERS (no conference proceedings)

7. B.I. Shklovskii, O.B. Ptitzyn, Dimension of Branching polymer molecules, High Polymers 8, 746 (1966)
8. L.E. Gurevich, B.I. Shklovskii, To the theory of second sound in semiconductors, Fiz. Tv. Tela 8, 3050 (1966)
9. L.E. Gurevich, B.I. Shklovskii, High frequency longitudinal sound absorption in solids at low temperatures, Fiz. Tv. Tela 9, 526 (1967)
10. B.I. Shklovskii, Hypersound absorption in ferroelectrics at low temperatures, Fiz. Tv. Tela 9, 1917 (1967)
11. B.I. Shklovskii, G.A. Roman, Hypersound absorption in antiferromagnetics, Fiz. Tv. Tela 9, 2794 (1967)

12. B.I. Shklovskii, I.V. Ioffe, Electric field effect on sound absorption in dielectrics, Fiz. Tv. Tela 9, 2116 (1967)
13. L.E. Gurevich, B.I. Shklovskii, Ultrasound absorption in dielectric crystals, Zh. Eksp. Teor. Fiz. 53, 1726 (1967)
14. B.I. Shklovskii, Sound absorption in crystals with quasilocalized phonon states, Fiz. Tv. Tela 10, 634 (1968)
15. S.M. Pyvkin, V.B. Rysakov, I.M. Fishman, B.I. Shklovskii, I.D. Yaroshetskii, Stimulated Mandelstam-Brillouin scattering dependence on light intensity in fused silica. , Fiz. Tv. Tela 9, 2735 (1967)
16. H. Nielsen, B.I. Shklovskii, Nonlinear heat transfer in dielectrics in the regime of viscous phonon drift, Fiz. Tv. Tela 10, 3602 (1968)
17. H. Nielsen, B.I. Shklovskii, Heat transfer and second sound in dielectrics at high phonon drift velocity, Zh. Exp. Teor. Fiz 57, 709 (1969)
18. A.L. Efros, B.I. Shklovskii, Gyrothermal effect in crystals at low temperatures, JETP Letters 11, 265 (1970)
19. Ya. Balagurov, V.G. Vaks, B.I. Shklovskii, Critical mode damping in ferroelectrics of displacement type. Fiz. Tv. Tela 12, 89-99 (1970)
20. B.I. Shklovskii, A.L. Efros, Density-of-states tails in heavily doped semiconductors, Fiz. Tekh. Poluprov ' 4, 305 (1970) - (Engl. transl.: Sov. Phys.-Semicond. 4, 249 (1970))
21. B.I. Shklovskii, A.L. Efros, Band tailing and absorption of light in semiconductors, Zh. Eksp. Teor. Fiz. 58, 657 (1970) - (Engl. transl.: Sov. Phys.-JETP 31, 351 (1970))
22. B.I. Shklovskii, A.L. Efros, Interband absorption of light in heavily doped semiconductors, Zh. Eksp. Teor. Fiz. 59, 1343 (1970) - (Engl. transl.: Sov. Phys.-JETP 32, 733 (1971))
23. B.I. Shklovskii, A.L. Efros, Impurity band and conductivity of compensated semiconductors, Zh. Eksp. Teor. Fiz. 60, 867 (1971) - (Engl. transl.: Sov. Phys.-JETP 33, 468 (1971))
24. B.I. Shklovskii, A.L. Efros, Transition from metallic to activated conductivity in compensated semiconductors. Zh. Eksp. Teor. Fiz. 61, 816 (1971) - (Engl. transl.: Sov. Phys. JETP 34, 435 (1972))
25. B.I. Shklovskii, M.S. Shur, A.L. Efros, S-type current-voltage characteristic of a compensated semiconductor, Fiz. Tekh. Poluprov. 5, 1938 (1971) - (Engl. transl.: Sov. Phys. Semicond. 5, 1682 (1971))
26. B.I. Shklovskii, Hopping conductivity of semiconductors in strong magnetic fields, Zh. Eksp. Teor. Fiz. 61, 2033 (1971) - Engl. transl.: Sov. Phys.-JETP 34, 108 (1972)

27. B.I. Shklovskii, A.L. Efros, I.Y. Yanchev, Activation energy of hopping condition, Zh. Eksp. Theor. Fiz. Pis. Red. 14, 348 (1971) - Engl. transl.: Sov. Phys.-JETP Lett. 14, 233 (1971)
28. B.I. Shklovskii, Optical and electrical bands of an amorphous semiconductor, Zh. Eksp. Theor. Fiz. Pis. Red. 14, 397 (1971) - Engl. transl.: Sov. Phys.-JETP Lett. 14, 269 (1971)
29. A.L. Efros, B.I. Shklovskii, I.Y. Yanchev, Impurity conductivity in low compensated semiconductors, Phys. Stat. Sol. B50, 45 (1972)
30. B. I. Shklovskii, A.L. Efros, Completely compensated crystalline semiconductor as a model of an amorphous semiconductor, Zh. Eksp. Theor. Fiz. 62, 1156 (1972); Engl. transl.: Sov. Phys.-JETP 35, 610 (1972)
31. B.I. Shklovskii, I.S. Shlimak, Hopping conduction in germanium. Fiz. Tekh. Poluprov. 6, 129 (1972) Engl. transl.: Sov. Phys.-Semicond. 6, 104 (1972)
32. Y.S. Galpern, B.I. Shklovskii, A.L. Efros, Low temperature conductivity of strongly compensated semiconductors, Proc. 11th Int. Conf. on Phys. of Semicond. Warsaw (1972)
33. B.I. Shklovskii, I.Ya Yanchev, Determination of degree of compensation of semiconductors from the saturation of hopping conduction. Fiz. Tekh. Poluprov. 6, 1616 (1972) - Engl. transl.: Sov. Phys.-Semicond. 6, 1398 (1972)
34. A.S. Skal, B.I. Shklovskii, Impurity concentration dependence of hopping conduction in semiconductors, Fiz. Tekh. Poluprov 7, 1589 (1973); Engl. transl.: Sov. Phys.Semicond. 7, 1058 (1973)
35. A.S.Skal. B.I. Shklovskii, A.L. Efros, Percolation level in a two-dimension random potential, Fiz. Tverd. Tela 15, 1423 (1973) - Engl. transl.: Sov. Phys.-Solid State 15, 961 (1973)
36. A.S. Skal, B.I. Shklovskii, A.L. Efros, Percolation level in a three-dimensional random potential, Zh. Eksp. Theor. Fiz. Pis. Red. 170, 522 (1973); Engl. Transl.: Sov. Phys.-JETP Lett 17, 377 (1973)
37. I.Ya Korenblit, E.F. Shender, B.I. Shklovskii, Percolation approach to the phase transition in very dilute ferromagnetic alloys, Phys. Lett. A46, 275 (1973)
38. B.I. Shklovskii, A.L. Efros, Localization of electrons in a magnetic field, Zh. Eksp. Theor. Fiz. 64, 2222 (1973) - Engl. transl.: Sov. Phys.-JETP 37, 1122 (1973)
39. B.I. Shklovskii, Theory of exponential magnetoresistance in semiconductors, Fiz. Tekh. Poluprov. 8, 416 (1973) - Engl. transl.: Sov. Phys.-Semicond. 8, 268 (1973)
40. B.I. Shklovskii, Hopping conduction of heavily doped semiconductors, Fiz. Tekh. Poluprov. 7, 112 (1973) - Engl. transl.: Sov. Phys.-Semicond. 7, 77 (1973)
41. B.I. Shklovskii, Hopping conduction in semiconductors in a strong electric field, Fiz. Tekh. Poluprov. 6, 2335 (1973) - Engl. transl.: Sov. Phys.-Semicond. 6, 1964 (1973)

42. A.S. Skal, B.I. Shklovskii, Mott equation for low temperature hopping conductivity, Fiz. Tverd. Tela 16, 1820 (1974) - Engl. transl.: Sov. Phys.-Solid State 16, 1190 (1974)
43. B.L. Gelmont, A.R. Gadzhiev, B.I. Shklovskii, I.S. Shlimak, A.L. Efros,- Hopping conduction in germanium silicon solid solutions, Fiz. Tekh. Poluprov. 8, 2377 (1974) - Engl. transl: Sov. Phys.-Semicond. 8, 1549 (1974)
44. A.S. Skal, B.I. Shklovskii, Topology of the infinite cluster of the percolation theory and its relationship to the theory of hopping conduction, Fiz. Tekh. Poluprov. 8, 1586 (1974) - Engl. transl.: Sov. Phys.-Semicond. 8, 1029 (1975)
45. M.E. Levinshtein, B.I. Shklovskii, M.S. Shur, A.L. Efros, The relation between the critical exponents of percolation theory, Zh. Eksp. Theor. Fiz. 69, 386 (1975) - Engl. transl.: Sov. Phys.-JETP 42, 197 (1975)
46. A.S. Skal, B.I. Shklovskii, A.L. Efros., Activation energy of hopping conduction, Fiz. Tverd. Tela. 17, 506 (1975) - Engl. transl.: Sov. Phys.-Solid State 17, 316 (1975)
47. B.I. Shklovskii, A.L. Efros, The preexponential factor of hopping conduction, Zh. Tekh. Fiz. Pis. Red. 1, 174 (1975) -Engl. transl.: Sov. Phys.-Tech. Phys. Lett. 1, 83 (1975)
48. E.F. Shender, B.I. Shklovskii, The Curie temperature of dilute ferromagnetic alloys near the percolation threshold, Phys. Lett. A55, 77 (1975)
49. A.L. Efros, B.I. Shklovskii, Coulomb gap and low-temperature conductivity of disordered systems, J. Phys. C8, L49 (1975)
50. B.I. Shklovskii, Hopping conduction in semiconductor films. Phys. Lett. A51, 289 (1975)
51. A.L. Efros, B.I. Shklovskii, Critical behavior of conductivity and dielectric constant near the metal-non-metal transition threshold, Phys. Stat. Sol. B76, 476 (1976)
52. B.I. Shklovskii, Non-ohmic hopping conduction, Fiz. Tekh. Poluprov. 10, 1440 (1976) - Engl. transl.: Sov. Phys. Semicond. 10, 855 (1976)
53. A.L. Efros, B.I. Shklovskii, Hopping Conduction and Critical Indices of the Percolation Theory, in Proc. 6th Int. Conf. Amorphous and Liquid Semicond. (Nauka, Leningrad 1976) p. 89
54. B.I. Shklovskii, Critical behavior of the Hall coefficient near the percolation threshold, Zh. Eksp. Theor. Fiz. 72, 288 (1977) - Engl. transl.: Sov. Phys.-JETP 45, 152 (1977)
55. B.I. Shklovskii, Thickness dependence of hopping conduction in amorphous films. Experiment versus theory, Phys. Stat. Sol., B83, K11 (1977)
56. B. I. Shklovskii, Anisotropy of hopping conduction, Fiz. Tekh. Poluprov. 1, 2135 (1977) Engl. transl.: Sov. Phys. Semicond. 11, 1253 (1977)

57. B.I. Shklovskii, Anisotropy of percolation conduction, Phys. Stat. Sol. B85, K111 (1978)
58. B.I. Shklovskii, Nguyen Van Lien, Hopping magnetoresistance of n-type germanium, Fiz. Tekh. Poluprov. 12, 1346 (1978); Engl. transl.: Sov. Phys.-Semicond. 12, 796 (1978)
59. S. D. Baranovskii, A. L. Efros, B. L. Gelmont, B. I. Shklovskii, Coulomb gap in disordered systems. Computer simulation, J. Phys C: 12, 1023 (1979)
60. A.L. Efros, Nguyen Van Lien, B.I. Shklovskii, Impurity band structure in lightly doped semiconductors, J. Phys. C12, 1869 (1979)
61. B. I. Shklovskii, Percolation conductivity in strong electric fields, Fiz. Tekh. Poluprov. 13, 93 (1979); Engl. transl. Sov. Phys.-Semicond. 13, 53 (1979) .
62. Nguyen Van Lien, B.I. Shklovskii, Percolation level in lightly doped semiconductors, Fiz. Tekh. Poluprov. 13, 1763 (1979), Engl. transl.: Sov. Phys.-Semicond. 13, 1025 (1979)
63. Nguyen Van Lien, B.I. Shklovskii, A.L. Efros, Activation energy of hopping conduction in lightly doped semiconductors, Fiz. Tekh. Poluprov. 13, 2192 (1979) - Engl. transl.: Sov. Phys.-Semicond. 13, 1281 (1979)
64. Nguyen Van Lien, B.I. Shklovskii, A.L. Efros, Activation energy of hopping conduction in lightly doped semiconductors, Fiz. Tekh. Poluprov. 13, 2192 (1979) - Engl. transl.: Sov. Phys.-Semicond. 13, 1281 (1979).
65. A.L. Efros, Nguyen Van Lien, B.I. Shklovskii, Variable range hopping in doped crystalline semiconductors, Solid State Commun. 32, 851 (1979)
66. Sh.M. Kogan, Nguyen Van Lien, B.I. Shklovskii, Electric fields in a weakly doped compensated semiconductor, Zh. Eksp. Theor. Fiz. 78, 1933 (1980) - Engl. transl.: Sov. Phys.-JETP 51, 971 (1980)
67. S.D. Baranovskii, B.I. Shklovskii, A.L. Efros, Elementary excitation in disordered systems with localized electrons, Zh. Eksp. Theor. Fiz. 78, 392 (1980) - Engl. transl.: Sov. Phys. JETP 51, 199 (1980)
68. B.I. Shklovskii, Theory of 1/f noise for hopping conduction, Solid State Commun. 33, 273 (1980)
69. B.I. Shklovskii, A.L. Efros, Impurity band and hopping conduction, J. Phys. Soc. Japan 49, 359 (1980)
70. S.M. Kogan, B.I. Shklovskii, Excessive low frequency noise in hopping conduction, Fiz. Tech. Poluprov 15, 1049 (1981)

71. B.I. Shklovskii, Anisotropy of percolation conduction in a mixture of two anisotropic media, Zh. Tekh. Fiz. Pis. Red. 7, 1312 (1981) - Engl. transl.: Sov. Phys.-Tech. Phys. Lett. 7, 562 (1981)
72. M.S. Bello,, E.I. Levin, B.I. Shklovskii, A.L. Efros, Density of localized states in the surface impurity band of a metal-insulator-semiconductor structure, Zh. Eksp. Theor. Fiz. 83, 1596 (1981) - Engl. transl.: Sov. Phys.-JETP 53, 822 (1981)
73. B.I. Shklovskii, A.L. Efros, Phononless hopping conduction in disorderd systems, Zh. Eksp. Theor. Fiz. 81, 406 (1981) - Engl. transl.: Sov. Phys.-JETP 54, 218 (1981)
74. Nguyen Van Lien, B.I. Shklovskii, Hopping conduction in strong electric fields and directed percolation, Solid State Commun. 38, 99 (1981)
75. E.I. Levin, Nguyen Van Lien, B.I. Shklovskii, The resistor network method in the theory of hopping conduction, Zh. Eksp. Theor. Fiz. 82, 1591 (1982) - Engl. transl.: Sov. Phys.-JETP 55, 921 (1982)
76. E.I. Levin, Nguyen Van Lien, B.I. Shklovskii, Hopping electrical conduction in strong electric fields: A numerical computer experiment, Fiz. Tekh. Poluprov. 16, 815 (1982) - Engl. transl.: Sov. Phys. Semicond. 16, 523 (1982)
77. B.I. Shklovskii, Electron-electron interaction effect on infrared absorption by small particles, JETP-Lett. 36, 287 (1982)
78. B.I. Shklovskii, Variable-range hopping conduction in a strong magnetic field, Zh. Eksp. Theor. Fiz. Pis. Red. 36, 43 (1982) - Engl. transl.: Sov. Phys.-JETP Lett. 36, 287 (1982)
79. B.I. Shklovskii, A.L. Efros, Tunnel transparency of disordered systems in a magnetic field, Zh. Eksp. Theor. Fiz. 84, 81 (1983) - Engl. transl.: Sov. Phys.-JETP 57 (1983)
80. A.B. Khaetskii, B.I. Shklovskii, Anomalous tunneling across magnetic field near semiconductor surface, Zh. Eksp. Theor. Fiz. 85, 721 (1983) - Engl. transl.: Sov. Phys.-JETP 58, 421 (1983)
81. B.I. Shklovskii, Positive magnetoresistance in the variable range hopping conduction regime, Fiz. Tekh. Poluprov. 17, 2055 (1983) - Engl. transl.: Sov. Phys. Semicond. 17, 1311 (1983)
82. A.N. Ionov, B.I. Shklovskii, I.S. Shlimak, Magnetoresistance of germanium in the variable-range hopping conduction region, Fiz. Tekh. Poluprov. 17, 503 (1983) - Engl. transl.: Sov. Phys. Semicond. 17, 314 (1983)
83. B.I. Shklovskii, B.Z. Spivak, Scattering effect on the electron tunneling and variable range hopping conduction, J. Stat. Phys. 38, 267 (1984)
84. S.D. Baranovskii, B.I. Shklovskii, A.L. Efros, Screening in localized electron system, Zh. Eksp. Theor. Fiz. 1793 (1984) - Engl. transl: Sov. Phys. JETP 60 1031 (1984).

85. B.I. Shklovskii, New problem of percolation theory and conduction of granular metals, Fiz.-Tv. Tela 26 585 (1984).
86. E.I. Levin, B.I. Shklovskii, Low-temperature hopping conduction in strong electric field. Computer experiment, Fiz. Tekh. Poluprov 18, 856 (1984) - Engl. transl: Sov. Phys.-Semicond., 11, 534 (1984).
87. V.L. Nguyen, B.I. Shklovskii, B.Z. Spivak, Aharonov-Bohm oscillations with normal and superconductive flux-quanta in hopping conduction, Pis'ma Zh. Eksp. Teor. Fiz. 41, 35 (1985) - Engl. transl: Sov. Phys. JETP Letters 41, 42 (1985).
88. B.I. Shklovskii, A.L. Efros, Impurity band conduction and related phenomena, in: Physics of Semiconductors, Plenum Press (1985).
89. B.Z. Spivak, V.A. Kharchenko, B.I. Shklovskii, Scattering effect on VRH conduction, Fiz. Tekh. Poluprov. 19, 493 (1985).
90. V.L. Nguyen, B.Z. Spivak, B.I. Shklovskii, Tunnel hops in disordered systems, Zh. Eksp. Teor. Fiz. 89, 1770 (1985) - Engl. transl.: Sov. Phys.-JETP 62, 1021 (1985)
91. B.I. Shklovskii, A.L. Efros, Density of state oscillations of 2d electron gas in magnetic field, Pis'ma Zh. Eksp. Teor. Fiz. 44, 95 (1986) - Engl. Transl: Sov. Phys.-JETP Letters 44, 669 (1986).
92. B.L. Altshuler, B.I. Shklovskii, Repulsion of energy levels and conductivity of small metallic samples, Zh. Eksp. Teor. Fiz. 91, 220 (1986) - Engl. Transl: Sov. Phys.-JETP 64, 127 (1986).
93. B.I. Shklovskii, Model of surface recombination in amorphous semiconductors, Pis'ma Zh. Eksp. Teor. Fiz. 44, 95 (1986), - Engl. Transl: Sov. Phys.-JETP letters 14, 123 (1986)
94. S.D. Baranovskii, E.I. Ivchenko, B.I. Shklovskii, New regime of recombination of photoinduced carriers in amorphous semiconductors, Zh. Eksp. Teor. Fiz. 22, 2234 (1987) - Engl. Transl.: Sov. Phys.-JETP 65, 1260 (1987).
95. S.D. Baranovskii, V.G. Karpov, B.I. Shklovskii, Theory of non-radiative recombination in amorphous semiconductors, J. Non-Cryst. Solids 97-98, 487 (1987).
96. A.L. Efros, B.I. Shklovskii, Influence of electron-electron interaction on hopping conduction of disordered systems, J. Non-Cryst. Solid 97-98, 31 (1987).
97. E.I. Levin, V.L. Nguyen, B.I. Shklovskii, A.L. Efros, Coulomb gap and hopping electric conduction. Computer Simulation, Zh. Eksp. Teor. Fiz. 92, 1499 (1987) - Engl. Transl.: Sov. Phys.-JETP 65, 842 (1987).

98. S.D. Baranovskii, B.I. Shklovskii, V.G. Karpov, Theory of non-radiative recombination in amorphous semiconductors, *Zh. Eksp. Teor. Fiz.* 94, 278 (1988) - Eng. Transl.: *Sov. Phys.-JETP* 67, 588 (1988).
99. D.I. Aladashvili, Z. Adamia, K. Lavdovskii, E.I. Levin, B.I. Shklovskii, Negative differential resistance in hopping region in silicon, *Pis'ma v Zh. Eksp. Teor. Fiz.* 47, 390 (1988) - Eng. Transl.: *Sov. Phys.-JETP Lett.* 47, 466 (1988).
100. B.L. Altshuler, I. Zharekeshev, S.A. Kotochigova, B.I. Shklovskii, Repulsion between energy levels and the metal-insulator transition, *Zh. Eksp. Teor. Fiz.* 94, 343 (1988) - Eng. Transl.: *Sov. Phys.-JETP* 67, 625 (1988).
101. E.I. Levin, B.I. Shklovskii, Negative differential conductivity of low density electron gas in random potential, *Solid State Comm.* 67, 233 (1988).
102. B.I. Shklovskii, H. Fritzsche and S.D. Baranovskii, Electronic Transport and Recombination in Amorphous semiconductors at Low Temperatures, *Phys. Rev. Lett.* 62, 2989 (1989).
103. E.I. Levin, I.M. Ruzin, B.I. Shklovskii, Transverse hopping conductivity of amorphous films in strong electric fields. *Fiz. Tekh. Polup.* 22, 624 (1988) - Eng. Transl.: *Sov. Phys.-Semicond.* 22, 401 (1988).
104. M.E. Raikh, I.M. Ruzin and B.I. Shklovskii, Influence of localized states in barrier on a fluctuation tunnel current flowing across a metal semiconductor contact. *Fiz. Tech. Poluprov* 22, 1979 (1988) - Eng. Transl.: *Sov. Phys. Semicond* 22, 1254 (1988).
105. D.I. Aladashvili, Z. Adamia, K. Lavdovskii, E.I. Levin, B.I. Shklovskii, Frenkel-Pool effect in hopping conduction of weakly compensated semiconductors, *Fiz. Tekh. Poluprov* 23, 213 (1989) - Eng. Transl.: *Sov. Phys. Semicond.* 21, 132 (1989).
106. S.D. Baranovskii, B.I. Shklovskii, Two models of radiative recombination in disordered semiconductors, *Fiz. Tech. Poluprov* 23, 146 (1989) - Eng. Transl.: *Sov. Phys.-Semicond.* 23, 88 (1989).
107. S.D. Baranovskii, B.I. Shklovskii, Temperature dependence of the line profile of photothermal ionization of impurities in a highly doped weakly compensated semiconductor, *Fiz. Tekhn. Poluprov* 23, 192 (1989) - Eng. Transl.: *Sov. Phys. Semicond.* 23, 122 (1989).
108. S.D. Baranovskii, H. Fritzsche, E.I. Levin, I.M. Ruzin, B.I. Shklovskii, Low temperature electronic transport and recombination in amorphous semiconductors, *Zh. Eksp. Teor. Fiz.* 96, 1362 (1989) - Eng. Transl.: *Sov. Phys. JETP* 70, (1989).
109. A. O. Orlov, A.K. Savchenko and B.I. Shklovskii, Evolution of fluctuational potential in the case of depletion in a channel of a field GaAs transistor, *Fiz. Tekhn. Poluprov.* 23, 1334 (1989)- Eng. Transl.: *Sov. Phys.-Semicond.* 23, 830 (1989).



110. B.I. Shklovskii, H. Fritzsche and S.D. Baranovskii, Recombination and photoconductivity in amorphous semiconductors at low temperature, Proc. of Intn'l Conf. on Physics of Amorphous and Liquid Semiconductors, Ashville, 1989, North Holland.
111. Qui-yi Ye, B.I. Shklovskii, A. Zrenner, F. Koch and K. Ploog, Negative magnetoresistance for hopping transport in  $\delta$ -doped layers, Phys. Rev. B41, 8477 (1990).
112. M.E. Raikh, S.D. Baranovskii and B.I. Shklovskii, On the dimensional quantization in a-Si:H quantum well structures: The alloy model, Phys. Rev. B41, 7701 (1990).
113. I.M. Ruzin, B.I. Shklovskii, Theory of hopping photoconductivity at low-frequency excitation, Fiz. Tekhn. Poluprov. 23. 1881 (1989) - Engl. Transl. Sov. Phys.-Semicond. 23, (1989).
114. D.I. Aladashvili, Z. Adamia, K. Lavdovskii, E.I. Levin and B.I. Shklovskii, Non-Ohmic hopping conductivity of weakly compensated semiconductors, Fiz. Tekhn. Poluprov. 24; (1990) - Engl. Transl: Sov. Phys.-Semicond. 24 (1990).
115. B.I. Shklovskii and B.Z. Spivak, Interference phenomena in variable range hopping conductivity in "Hopping and related phenomena", edited by H. Fritzsche and M. Pollak, 1990, World Scientific Publishing Company.
116. D.I. Aladashvili, Z.A. Adamiya, K.G. Lavdovskii, E.I. Levin and B.I. Shklovskii, High field hopping and negative differential conductance in weakly compensated silicon, in "Hopping and related phenomena", ed. by H. Fritzsche and M. Pollak, 1990, World Scientific.
117. B. I. Shklovskii, E.I. Levin, H. Fritzsche and S.D. Baranovskii, Hopping photoconductivity in amorphous semiconductors: Dependence on temperature, electric field and frequency in "Transport, correlation and structural defects", edited by Hellmut Fritzsche, 1990, World Scientific.
118. Yu. M. Galperin, Anjun Jin, B.I. Shklovskii, Acoustoelectric effect in systems with localized states, Phys. Rev. B44, 5497 (1991).
119. E. I. Levin, M.E. Raikh and B.I. Shklovskii, Impurity Band Structure of the  $\delta$ -doped semiconductor in the low density, Phys. Rev. B44, 11281 (1991).
120. L. I. Glazman, I. M. Ruzin, B.I. Shklovskii, Quantum transport and pinning of one-dimensional Wigner crystal, Phys. Rev. 45, 8454 (1992).
121. E. I. Levin S. Marianer and B.I. Shklovskii, Luminescence lifetime distribution in amorphous semiconductors, J. Non Crystalline Solids 137/138, 559 (1991).
122. E. I. Levin, S. Marianer and B.I. Shklovskii, Photoluminescence of amorphous silicon at low temperatures. Computer simulation, Phys. Rev. 45, 5906 (1992).

123. D. B. Chklovskii, B. I. Shklovskii and L.I.Glazman, Electrostatics of edge states Phys. Rev. B 46, 4026 (1992)
124. S.Marianer, B.I Shklovskii, Effective temperature of hopping electrons in a strong electric field, Phys. Rev. B 46, 13100 (1992)
125. I.M.Ruzin, S.Marianer, B.I.Shklovskii, Pinning of two dimensional Wigner crystal by charged impurities, Phys. Rev. B46, 3999 (1992)
126. B.I.Shklovskii, B.Shapiro, B.R.Sears, P Lambrianidis, H.B.Shore, Statistics of spectra of disordered systems near the Metal-Insulator transition, Phys. Rev.B47, 11487 (1993)
127. D.B. Chklovskii, K.A. Matveev,B.I Shklovskii, Ballistic conductance of interacting electrons, Phys. Rev. B47, 12605 (1993)
128. D.G.Polyakov, B.I.Shklovskii, Variable range hopping as the mechanism of the conductivity peaks broadening, Phys. Rev. Lett. 70, 3796 (1993)
129. D.G.Polyakov, B.I. Shklovskii, Conductivity peak broadening in the quantum Hall regime, Phys. Rev. B48, 11167 (1993)
130. D. G. Polyakov, B. I. Shklovskii, "Conductivity peak broadening in the quantum Hall regime", Physica A 200, 476 (1993)
131. A. K. Evans, L. I. Glazman, B. I. Shklovskii, "Coulomb blockade in the quantum Hall state," Phys. Rev. B48, 11120 (1993)
132. D. G. Polyakov, B. I. Shklovskii, "Conductivity peak in the Quantum Hall regime: broadening with temperature, current and frequency," Surface Science 305, 151 (1994)
133. I. L. Aleiner, B. I. Shklovskii, "Hopping transport and quantum Hall effect: absorption of surface acoustic waves" International Journal of Modern Physics B, 8, 801 (1994)
134. D. G. Polyakov, B. I. Shklovskii, "Activated conductivity in the Quantum Hall Effect", Phys. Rev. Lett.73, 1150 (1994)
135. I. L. Aleiner, B. I. Shklovskii, "Effect of screening of the Coulomb interaction on the conductivity in the Quantum Hall regime," Phys. Rev B49, 13721 (1994)
136. M. M. Fogler, E. I. Levin, B. I. Shklovskii, "Chemical Potential and Magnetization of a Coulomb Island," Phys. Rev. B49, 13767 (1994)
137. M. M. Fogler, B. I. Shklovskii, "Resistance of a long wire in the quantum Hall regime," Phys. Rev. B50 1656 (1994)
138. I. L. Aleiner, D. G. Polyakov, B. I. Shklovskii, "Hopping transport and the quantum Hall effect," in "Physics of Semiconductors", World Scientific, p. 787, (1995)

139. D. G. Polyakov, B. I. Shklovskii, "Universal prefactor of activated conductivity in the Quantum Hall Effect," *Phys. Rev. Lett.* 74, 150 (1995)
140. M. M. Fogler, B. I. Shklovskii, "Thermally activated deviations from Quantum Hall Plateaus," *Solid State Commun.* 94, 503 (1995)
141. M. M. Fogler, B. I. Shklovskii, "The probability of an eigenvalue number fluctuation in an interval of a random matrix spectrum," *Phys. Rev. Lett.* 74, 3312 (1995)
142. M. M. Fogler, B. I. Shklovskii, "Collapse of spin-splitting in the quantum Hall effect" *Phys. Rev. B*, 52, 17366 (1995).
143. M. M. Fogler, D. G. Polyakov, B. I. Shklovskii, "Activated transport in the Quantum Hall Effect," *Surface Science*, 361/362, 255 (1996)
144. A. A. Koulakov, M. M. Fogler, and B. I. Shklovskii, "Charge density wave in two-dimensional electron liquid in a weak magnetic field," *PRL* 76, 499 (1996)
145. A. A. Koulakov, M. M. Fogler, and B. I. Shklovskii, "The Ground State of a Two-Dimensional Electron Liquid in a Weak Magnetic Field," *Phys. Rev. B* 54, 1853 (1996).
146. A. A. Koulakov, F. G. Pikus and B. I. Shklovskii, "Statistics of Charging Spectrum of Coulomb glass island", *Phys. Rev. B* 55, 9223 (1997)
147. A. A. Koulakov, M. M. Fogler, and B. I. Shklovskii, "The Ground State of a Two-Dimensional Electron Liquid in a Weak Magnetic Field", *Surface Science*, 367/368 (1997)
148. M. M. Fogler, A. Dobin, V. I. Perel, B. I. Shklovskii, "Suppression of Chaotic dynamics and localization of two-dimensional electrons by a weak magnetic field *Phys. Rev. B* 56, 6823 (1997)
149. A. A. Koulakov and B. I. Shklovskii, "Statistics of Charging Spectrum of a small Wigner crystall island", *Phil. Mag. B* 77, 1235 (1998).
150. A. A. Koulakov, M. M. Fogler, and B. I. Shklovskii, "The Ground State of a Two-Dimensional Electron Liquid in a Weak Magnetic Field", *Surface Science*, 367/368 (1997)
151. M. M. Fogler, A. Yu. Dobin, B. I. Shklovskii "Localization length at the resistivity minima of the quantum Hall effect" *Phys. Rev. B* 57, 4614 (1998)
152. A. A. Koulakov, B. I. Shklovskii "Charging Spectrum and Configurations of a Wigner Crystal Island" *Phys. Rev. B* 57, 2352 (1998).
153. M. M. Fogler, B. I. Shklovskii, "Cyclotron resonance in a two-dimensional electron gas with long-range randomness," *Phys. Rev. Lett.* 80, 4749 (1998)

154. R. Berkovits, B. I. Shklovskii, "Statistics of energy spectra of a strongly disordered system of interacting electrons," *J. Phys. Cond. Mat.* 11, 779 (1999)
155. B. I. Shklovskii, "Wigner crystal model of counterion induced bundle formation of rod-like polyelectrolytes," *Phys. Rev. Lett.* 82, 3268 (1999).
156. Mark Lee, J. G. Massey, V. L. Nguyen, B. I. Shklovskii "Coulomb Gap in a Doped Semiconductor near the Metal-Insulator Transition: Tunneling Experiment and Scaling Ansatz", *Phys. Rev. B* 60, 1582 (1999).
157. V. I. Perel, B. I. Shklovskii, "Screening of polyelectrolytes by polyvalent ions: A new boundary condition for Poisson-Boltzmann equation and charge inversion," *Physica A*, 274, 446 (1999).
158. B. I. Shklovskii "Screening of a macroion by multivalent ions: Correlation-induced inversion of charge" *Phys. Rev. E* 60, 5802 (1999).
159. T. T. Nguyen, I. Rouzina, B. I. Shklovskii , "Negative electrostatic contribution to the bending rigidity of charged membranes and polyelectrolytes screened by multivalent counterions" *Phys. Rev. E* 60, 7032 (1999).
160. T. T. Nguyen, I. Rouzina, B. I. Shklovskii , "Reentrant Condensation of DNA induced by Multivalent Counterions", *J. Chem. Phys.* . 112, 2562 (2000).
161. T. T. Nguyen, A. Yu. Grosberg, B. I. Shklovskii, "Charged surface in salty water with multivalent ions: Giant inversion of charge." *Phys. Rev. Lett.* 85, 1568 (2000).
162. T. T. Nguyen, A. Yu. Grosberg, B. I. Shklovskii, "Screening of a charged particle by multivalent counterions in salty water: Giant charge inversion", *J. Chem. Phys.* 113, 1110 (2000).
163. T. T. Nguyen, B. I. Shklovskii, "Overcharging of a macroion by an oppositely charged polyelectrolyte" *Physica A* 293, 324 (2001).
164. T. T. Nguyen, B. I. Shklovskii, "Complexation of a polyelectrolyte with oppositely charged spherical macroions: Giant inversion of charge." *J. Chem. Phys.* 114, 5905 (2001).
165. T. T. Nguyen, B. I. Shklovskii, "Adsorption of multivalent ions on a charged surface: Oscillating inversion of charge" *Phys. Rev E*, 64, 0141407 (2001).
166. T. T. Nguyen, A. Yu. Grosberg, B. I. Shklovskii "Lateral correlation of multivalent counterions is the universal mechanism of charge inversion" in the book "Electrostatics effects in Biophysics and soft matter, C. Holm, P. Kekicheff, R. Podgornik eds, Kluver (2001).

167. T. T. Nguyen, B. I. Shklovskii, "Complexation of DNA with positive spheres: phase diagram of charge inversion and reentrant condensation", *J. Chem. Phys.* 115, 7298 (2001).
168. T. T. Nguyen, A. Yu. Grosberg, B. I. Shklovskii, "Screening and charge inversion in electrolytes", Chapter 18 in the book "More is Different – Fifty years of condensed matter Physics" (devoted to 75<sup>th</sup> birthday of P. W. Anderson) ed. N. Phuan Ong and Ravin Bhatt (Princeton university Press, 2001).
169. T. T. Nguyen, A. Yu. Grosberg, B. I. Shklovskii, "Physics of charge inversion in chemical and biological systems", *Rev. Mod. Phys.* 74, 329 (2002).
170. A. I. Larkin, B. I. Shklovskii, "Tunneling between two semiconductors with localized electrons: Can it reveal the Coulomb gap?" *Phys. Stat. Sol. (b)* 230, 189 (2002).
171. T. T. Nguyen, B. I. Shklovskii, "A toy model of inversion of DNA charge by a positive polymer: fractionalization of the polymer charge", *PRL*, 80, 018101 (2002)
172. T. T. Nguyen, B. I. Shklovskii, "Inversion of DNA charge by a positive polymer via fractionalization of the polymer charge", *Physica A* 310, 197 (2002).
173. T. T. Nguyen, B. I. Shklovskii, "Kinetics of macroion coagulation induced by multivalent counterions" *Phys. Rev E*, 65, 031409 (2002).
174. T. T. Nguyen, B. I. Shklovskii, "Persistence length of a polyelectrolyte in a salty water: a Monte-Carlo study" *Phys. Rev E*, 66, 021801 (2002).
175. B. I. Shklovskii, "1/f noise in variable range hopping conduction" *Phys. Rev. B* 67, 045201 (2003)
176. E. M. Baskin, B. I. Shklovskii and G. V. Zilberstein, "Electrophoretic separation of proteins via complexation with a polyelectrolyte," *Physica A*, 317, 313 (2003).
177. B. I. Shklovskii, "Coulomb gap and variable range hopping in a pinned Wigner crystal", *Phys. Stat. Sol. (c)* 1, 46 (2004).
178. R. Zhang, B. I. Shklovskii, "The pulling force of a single DNA molecule condensed by spermidine", *Physica A*, 349, 563 (2005).
179. R. Zhang, B. I. Shklovskii, "Phase diagram of aggregation of oppositely charged colloids in salty water" *Phys. Rev. E.* 69, 021909 (2004).
180. M. M. Fogler, S. Teber, B. I. Shklovskii, "Variable-range hopping in quasi-one-dimensional electron crystals", *Phys. Rev. B* 69, 035413 (2004).
181. J. Zhang, B. I. Shklovskii "Density of States and Conductivity of Granular Metal or Array of Quantum Dots" *Phys. Rev. B*, 70, 115317 (2004).

182. R. Zhang, B. I. Shklovskii, "Phase diagram of solution of oppositely charged polyelectrolytes" *Physica A*, 352, 216 (2005).
183. B. I. Shklovskii, "A simple derivation of the Gompertz law for human mortality" *Theory in Biosciences*, 123, 431 (2005)
184. R. Zhang, B. I. Shklovskii, "Long range polarization attraction between two different likely charged macroions" *Phys. Rev. E* 72, 021405 (2005)
185. A. Kamenev, J. Zhang, B. I. Shklovskii, A. I. Larkin, "Transport in one dimensional Coulomb gases: From ion channels to nanopores" *Physica A*, 359, 129 (2005).
186. A. Kamenev, J. Zhang, B. I. Shklovskii, "Conductance of ion channels and nanopores with charged walls: a toy model" *Phys. Rev. Lett.* 95, 148101 (2005)
187. A. L. Burin, Yu. M. Galperin, V. Kozub, V. Vinokur, B. I. Shklovskii, "Many electron theory of 1/f-noise in hopping conductivity" *Phys. Rev. B* 74, 075205 (2006)
188. A. Kamenev, J. Zhang, B. I. Shklovskii "Ion exchange phase transitions in "doped" water-filled channels" *Phys. Rev. E* 73, 051205 (2006).
189. Tao Hu, A. Yu. Grosberg, B. I. Shklovskii "How do proteins search for their specific sites on coiled or globular DNA" *Biophys. J.* 90, 2731 (2006).
190. Tao Hu, A. Yu. Grosberg, B. I. Shklovskii, "Conductivity of suspension of nanowires in a weakly conducting media." *Phys. Rev. B* 73, 155434 (2006)
191. B. I. Shklovskii "Dyakonov-Perel spin relaxation near metal-insulator transition and in hopping transport" *Phys. Rev. B* 73, 193201 (2006).
192. Tao Hu, B. I. Shklovskii, "How does a protein search for the specific site on DNA: the role of disorder", *Phys. Rev. E.* 74, 021903 (2006).
193. Douwe van Bounthuis, Jingshan Zhang, Breton Hornblower, Jerome Mathe, B. I. Shklovskii, Amit Meller "Self-energy limited ion transport in sub-nanometer channels", *Phys. Rev. Lett.* 97, 128104 (2006).
194. Tao Hu, B. I. Shklovskii, "Hopping conductivity of a suspension of nanowires in an insulator", *Phys. Rev. B* 74, 054205 (2006).
195. Tao Hu, B. I. Shklovskii, "Hopping conductivity of a suspension of flexible nanowires in an insulator", *Phys. Rev. B* 74, 174201 (2006).
196. J. Zhang, B. I. Shklovskii, "Effective charge and free energy of DNA inside an ion channel" *Phys.Rev. E*75, 021906 (2007).

197. Tao Hu, B. I. Shklovskii, "Kinetics of viral self-assembly: a role of ss RNA antenna", *Phys. Rev. E* **75**, 051901 (2007).
198. Tao Hu, B. I. Shklovskii, "How a protein searches for its specific site on DNA: the role of intersegment transfer." *Phys. Rev. E* **76**, 051909 (2007).
199. B. I. Shklovskii, "A simple model of Coulomb disorder and screening in grapheme" *Phys. Rev. B* **76**, 233411 (2007)
200. B. I. Shklovskii, "A simple model of superconductor-insulator transition in a Coulomb disorder" *Phys. Rev. B* **76**, 224511 (2007)
201. M. M. Fogler, D. S. Novikov, B. I. Shklovskii, "Screening of a hypercritical charge in graphene", *Phys. Rev. B* **76**, 233402 (2007).
202. Tao Hu, B. I. Shklovskii, "Electrostatic theory of viral self-assembly: a toy model", *Physica A* **387**, 3059 (2008).
203. M. M. Fogler, D. S. Novikov, L. I. Glazman, B. I. Shklovskii, "Disordered p-n junction in graphene", *Phys. Rev. B* **77**, 075420 (2008) .
204. B. I. Shklovskii "Superfluid-insulator transition and BCS-BEC crossover in "dirty" ultracold Fermi gas", *Fiz. Tekh. Poluprov (Semiconductors)* **42**, 927 (2008)
205. A. Kamenev, B. Meerson, and B. I. Shklovskii, "How Colored Enviromental Noise Affects Population Extinction" *Phys. Rev. Lett.* **101**, 268103 (2008).
206. Tao Hu and B. I. Shklovskii, "Theory of DNA translocation through narrow ion channels with charged walls" *Phys. Rev. E* **78**, 032901 (2008).
207. B. Skinner, B. I. Shklovskii, "Non-monotonic swelling of a macroion due to correlation-induced charge inversion" *Physica A*, **388**, 1 (2009) .
208. M. Mueller, B. I. Shklovskii, "Compensation driven superconductor-insulator transition" *Phys. Rev. B* **79**, 134504 (2009).
209. M. Loth, B. I. Shklovskii, "Non-mean-field screening by multivalent counterions" *J. of Physics, Condensed* **21**, 424104 (2009).
210. B. Skinner, M. Loth, B. I. Shklovskii, "Ionic conductivity on a wetting surface " *Phys. Rev. E* **80**, 041925 (2009).
211. B. Skinner, M. Loth, B. I. Shklovskii, "Capacitance of the Double Layer Formed at the Metal/Ionic-Conductor Interface: How Large Can It Be?" *Phys. Rev. Lett.* **104**, 128302 (2010).
212. M. Loth, B. Skinner, B. I. Shklovskii "Non-mean-field theory of anomalously large double-layer capacitance" *Rev. E* **82**, 016107 (2010).

213. B. Skinner, B. I. Shklovskii “Anomalously large capacitance of a plane capacitor with a two-dimensional electron gas”, *Phys. Rev. B* 82, 155111 (2010).
214. M. Loth, B. Skinner, B. I. Shklovskii, “Anomalously large capacitance of an ionic liquid described by the restricted primitive model *Phys. Rev. E* 82, 056102 (2010). “
215. M. Loth, B. Skinner, B. I. Shklovskii, “Theory of volumetric capacitance of an electric double layer super-capacitor”, *Phys. Rev. E*, **83**, 056102 (2011).
216. A. L. Efros, B. Skinner, B. I. Shklovskii, “Coulomb gap in the one-particle density of states in three-dimensional systems with localized electrons. *Phys. Rev. B* 84, 064204 (2011)”.
217. Brian Skinner, M. M. Fogler, B. I. Shklovskii, “A model of large volumetric capacitance in graphene supercapacitors based on ion clustering”, *Phys. Rev. B* 84, 235133 (2011)
218. Tianran Chen, Brian Skinner, B. I. Shklovskii, “Cooperative Charging in a Nanocrystal Assembly Gated By Ionic Liquid, *Phys. Rev. B* 84, 245304 (2011)”.