

# CURRICULUM VITAE

## ANDREI ANATOLIEVICH ZVYAGIN

### LIST OF PUBLICATIONS

#### BOOKS

Many of our above mentioned original results, together with the results of other authors, were reviewed in my books.

- A.A. Zvyagin  
**Finite Size Effects in Correlated Electron Models: Exact Results**  
(*Imperial College Press*, London, & *World Scientific*, Singapore, 2005).  
ISBN 978-1-86094-503-8; 978-1-78326-047-8 (ebook)
- A.A. Zvyagin  
**Finite Size Effects in Correlated Electron Models: Exact Results**  
(*Peking University Press*, Beijing (Peking), 2012).  
ISBN 978-7-301-21554-8
- A.A. Zvyagin  
**Quantum Theory of One-Dimensional Spin Systems**  
(*Cambridge Scientific Publishers*, Cambridge, 2010).  
ISBN 978-1-904868-85-9

#### REVIEW ARTICLES

- A.A. Zvyagin and I.V. Krive  
**Persistent currents in one-dimensional systems of strongly correlated electrons**  
*Fiz. Nizk. Temp.* 1995, V.21, #7, 687-716 (in Russian); *Low Temp. Phys.* 1995, V.21, #7, 533-555.
- A.A. Zvyagin  
**Bethe ansatz solvable multichain quantum systems**  
*J. Phys.: A*, 2001, V.34, #41, R21-R53.
- P. Schlottmann and A.A. Zvyagin  
**Phase separation and FFLO phases in ultra-cold gas of  $S=5/2$  atoms with attractive potential in a one-dimensional trap**  
*Mod. Phys. Lett. B*, 2012, V.26, #16, 1230009-1-29.
- A.A. Zvyagin  
**New physics in frustrated magnets: Spin ices, monopoles, etc.**  
*Fiz. Nizk. Temp.* 2013, V.39, #11, 1159-1185 (*Low Temp. Phys.* 2013, V.39, #11 901-922).
- S. Zherlitsyn, S. Yasin, J. Wosnitza, A.A. Zvyagin, A.V. Andreev, and V. Tsurkan  
**Spin-lattice effects in selected antiferromagnetic materials**  
*Fiz. Nizk. Temp.*, 2014, V.40, # 2 160-172 (*Low Temp. Phys.*, 2014, V.40, #2, 123-133).
- A.A. Zvyagin  
**Dynamical quantum phase transitions**  
*Fiz. Nizk.Temp.*, 2016, V. 42, # 11, 1240-1267 (*Low Temp. Phys.*, 2016, V. 42, # 11 971-994.)

## RESEARCH PAPERS

### References

- [1] A.A. Zvyagin  
**Electric field- and strain-induced quantum phase transitions in a spin chain**  
Fiz. Nizk. Temp., 2021, V.47, #11, (Low Temp. Phys., 2021, V.47, #11, ).
- [2] A.A. Zvyagin  
**Electromagnetic, piezoelectric, and magnetoelastic characteristics of a quantum spin chain system**  
Phys. Rev. B, 2021, V.103, #21, 214410.
- [3] A.A. Zvyagin  
**Expectation value of the edge Majorana fermion in an interacting fermion chain**  
Phys. Rev. B, 2021, V. 103, #20, 205136.
- [4] A.A. Zvyagin  
**Majorana zero modes in the interacting fermion chain without pairing**  
Fiz. Nizk. Temp., 2021, V.47, #5, 435-439 (Low Temp. Phys., 2021, V.47, #5, 401-405).
- [5] A.A. Zvyagin  
**External electric field and strain effects in a quantum paramagnet**  
Fiz. Nizk. Temp., 2021, V.47, #4, 322-327 (Low Temp. Phys., 2021, V.47, #4, 294-299).
- [6] A.A. Zvyagin, and G.A. Zvyagina  
**Piezoelectric and magneto-elastic effects in a quantum paramagnet**  
Fiz. Nizk. Temp., 2021, V.47, #2, 140-146 (Low Temp. Phys., 2021, V.47, #2, 123-129).
- [7] T. Nomura, Y. Skourski, D.L. Quintero-Castro, A.A. Zvyagin, A.V. Suslov, D. Gorbunov, S. Yasin, J. Wosnitza, K. Kindo, A.T.M.N. Islam, B. Lake, Y. Kohama, S. Zherlitsyn, and M. Jaime  
**Enhanced spin correlations in the Bose-Einstein condensate compound  $\text{Sr}_3\text{Cr}_2\text{O}_8$**   
Phys. Rev. B, 2020, V.102, #16, 165144.
- [8] A.A.Zvyagin  
**Effect of the bi-chromatic ac magnetic field on the quantum spin chain with an impurity**  
Cond. Matt. Phys., 2020, V.33 #4, 43707 1-7.
- [9] S.A. Bräuning, A. Jesche, S. Kamusella, F. Seewald, M. Fix, R. Sarkar, A.A. Zvyagin, and H.-H. Klauss  
**Magnetic field tuning of low energy spin dynamics in the single-atomic magnet  $\text{Li}_2(\text{Li}_{1-x}\text{Fe}_x)\text{N}$**   
Phys. Rev. B, 2020, V.102, #5, 054426.
- [10] Y. Gritsenko, S. Mombetsu, P.T. Cong, T. Stoeter, E.L. Green, C. Salazar Mejia, J. Wosnitza, M. Ruminy, T. Fennell, A.A. Zvyagin, S. Zherlitsyn, and M. Kenzelmann  
**Changes in elastic moduli as evidence for quadrupolar ordering in a rare-earth frustrated magnet  $\text{Tb}_2\text{Ti}_2\text{O}_7$**   
Phys. Rev. B, 2020, V.102, #6, 060403(R).
- [11] A.A. Zvyagin and I.Yu. Ropakova  
**Effect of the bi-chromatic electro-magnetic field on the random molecular aggregate or the quantum spin chain**  
Fiz. Nizk. Temp., 2020, V.46, #7, 805-811 (Low Temp. Phys., 2020, V.46, #7, 677-682).

- [12] A.A. Zvyagin  
**Persistent currents in the two-chain correlated electron model**  
 Fiz. Nizk. Temp., 2020, V.46, #5, 603-612 (Low Temp. Phys., 2020, V.46, #5, 507-516).
- [13] A.A. Zvyagin  
**Modulation of the longitudinal pumping in quantum spin systems**  
 Phys. Rev. B, 2020, V.101, #17, 174408.
- [14] A.V. Andreev, D.I. Gorbunov, T. Nomura, A.A. Zvyagin, G.A. Zvyagina, and S. Zherlitsyn  
**High-field magnetoacoustics of a  $\text{Dy}_2\text{Fe}_{14}\text{Si}_3$  single crystal**  
 J. All. Comp., 2020, V.835, 155335.
- [15] A.A. Zvyagin  
**Generalizations of exactly solvable quantum spin models**  
 Phys. Rev. B., 2020, V.101, #9, 094403.
- [16] M. Gen, T. Nomura, D.I. Gorbunov, S. Yasin, P.T. Cong, C. Dong, Y. Kohama, E.L. Green, J.M. Law, M.S. Henriques, J. Wosnitza, A.A. Zvyagin, V.O. Cheranovskii, R.K. Kremer, and S. Zherlitsyn  
**Magnetocaloric effect and spin-strain coupling in the spin-nematic state of  $\text{LiCuVO}_4$**   
 Phys. Rev. Research, 2019, V.1, #3, 033065.
- [17] V.A. Bedarev, D.N. Merenkov, M.I. Kobets, A.A. Zvyagin, S.N. Poperezhai, S.L. Gnatchenko, T. Zajarniuk, T. Vasevych, M. Gutowska, A. Szewczyk, I.A. Gudim  
**Manifestation of spin correlations in the single crystal  $\text{ErAl}_3(\text{BO}_3)_4$**   
 Fiz. Nizk. Temp., 2019, V.45, #9, 1217-1222 (in Russian) (Low Temp. Phys., 2019, V.45, #9, 1041-1045).
- [18] D.I. Gorbunov, T. Nomura, A.A. Zvyagin, M.S. Henriques, A.V. Andreev, Yu. Skourski, G.A. Zvyagina, R. Troc, S. Zherlitsyn, and J. Wosnitza  
**Magnetoelastic coupling across the field-induced transition of uranium mononitride**  
 Phys. Rev. B, 2019, V.100, #2, 024417.
- [19] A.A. Zvyagin  
**Fermionic quantum spin liquids: Exact results for parametric pumping**  
 Phys. Rev. B, 2019, V.100, #2, 024413.
- [20] A.A. Zvyagin and G.A. Zvyagina  
**Spontaneous spin-nematic ordering in a spin-chain system**  
 Phys. Rev. B, 2019, V.100 #1, 014416.
- [21] A.A. Zvyagin  
**Features of the response of the magnon system to the "spin echo"**  
 Fiz. Nizk. Temp., 2019, V.45, #5, 605-611 (in Russian) (Low Temp. Phys., 2019, V.45, #5, 518-523).
- [22] A.A. Zvyagin  
**Correlated electrons in a zig-zag chain with the spin-orbit interaction: Exact solution**  
 Fiz. Nizk. Temp., 2018, V.44, #12, 1588-1597 (Low Temp. Phys., 2018, V. 44, #12, 1237-1244).
- [23] A.A. Zvyagin  
**Quantum quench for the biaxial spin system**  
 Fiz. Nizk. Temp., 2018, V.44, #11, 1501-1509 (Low Temp. Phys., 2018, V. 44, #11, 1173-1179)
- [24] A.A. Zvyagin  
**Dynamics of a many-body quantum spin system caused by a sequence of pulses**  
 Phys. Rev. B, 2018, V.98, #5, 054414.

- [25] A.A. Zvyagin, K. Kutko, D. Kamenskyi, A.V. Peschanskii, S. Poperezhai, and N.M. Nesterenko  
**Observation of spontaneous ferriquadrupolar order in  $\text{KDy}(\text{MoO}_4)_2$**   
Phys. Rev. B, 2018, V.98, #6, 064406.
- [26] A.A. Zvyagin  
**Staggered field induced dynamical effects in a quantum spin chain**  
Phys. Rev. B, 2018, V.97, #21, 214425.
- [27] A.A. Zvyagin  
**Topological states and impurities: Manifestation in the local static and dynamical characteristics of dimerized quantum chains**  
Phys. Rev. B, 2018, V.97, #14, 144412.
- [28] M. Doerr, T. Stoeter, M. Rotter, A.A. Zvyagin  
**Magnetostriction of the spin-ice system  $\text{Yb}_2\text{Ti}_2\text{O}_7$**   
J. Magn. Magn. Mater., 2018, V.449, 378-384.
- [29] I.Yu. Ropakova and A.A. Zvyagin  
**Features of light absorption by a low-dimensional disordered molecular aggregate**  
Fiz. Nizk. Temp., 2018, V.44 # 1, 86-90 (in Russian) (Low Temp. Phys., 2018, V.44, # 1 65-68).
- [30] A.A. Zvyagin  
**Phenomenological description of a spin chain system with geometrical frustration of couplings**  
Fiz. Nizk. Temp., 2017, V.43, #11, 1676-1683 (Low Temp. Phys., 2017, V. 43, # 11, 1338-1344 ).
- [31] M.P. Kolodyazhnaya, K.R. Zhekov, I.V. Bilych, G.A. Zvyagina, and A.A. Zvyagin  
**Re-entrant low-temperature phase transition in the “orbital nematic”**  
Fiz. Nizk. Temp., 2017, V.43, #11, 1600-1608 (in Russian)(Low Temp. Phys., 2017, V. 43, # 11, 1276-1282 ).
- [32] A.V. Andreev, A.A. Zvyagin, Y. Skourski, S. Yasin, and S. Zherlitsyn  
**High-field magnetoelasticity of  $\text{Tm}_2\text{Co}_{17}$  and comparison with  $\text{Er}_2\text{Co}_{17}$**   
Fiz. Nizk. Temp., 2017, V.43, #11, 1575-1580 (Low Temp. Phys., 2017, V. 43, # 11, 1254-1259).
- [33] I.Yu. Ropakova and A.A. Zvyagin  
**Optical characteristics of the nanoparticle coupled to a quantum molecular aggregate**  
Fiz. Nizk. Temp., 2017, V.43, #11, 1594-1599 (Low Temp. Phys., 2017, V. 43, # 11, 1271-1275).
- [34] A.A. Zvyagin  
**Magnetic ordering of anisotropic magnets due to the rotation of a magnetic field**  
Fiz. Nizk. Temp., 2017, V.43, #8, 1194-1199 (in Russian)(Low Temp. Phys., 2017, V. 43, # 8, 960-964).
- [35] A.A. Zvyagin  
**Deformation-induced spin-orbit interaction in the Hubbard chain**  
Phys. Rev. B, 2017, V.95, # 16, 165141.
- [36] A.A. Zvyagin and I.Yu. Ropakova  
**Resonance absorption and fluorescence of a bi-chromatic electromagnetic field by the molecule coupled to a quantum molecular aggregate**  
Europhys. Lett., 2017, V. 117, 47005.
- [37] A.A. Zvyagin  
**Parametric pumping of the two-dimensional quantum spin liquid**  
Phys. Rev. B, 2017, V. 95, #6 064428.

- [38] A.A. Zvyagin  
**Nonequilibrium dynamics of a system with two kinds of fermions after a pulse**  
 Phys.Rev. B, 2017, V. 95, # 7, 075122.
- [39] I.Yu. Ropakova, A.V. Sorokin, A.A. Zvyagin and Yu.V. Malyukin  
**Modification of luminescent characteristics of a molecule interacting with exciton states of a J-aggregate**  
 Fiz. Nizk. Temp., 2017, V.43, #3, 513-519 (in Russian); Low Temp. Phys., 2017, V.43, #3 416-420.
- [40] A.A. Zvyagin  
**Laser-induced polarization of a quantum spin system in the steady-state regime**  
 Phys. Rev. B, 2016, V.93, #18, 184407.
- [41] A.A. Zvyagin  
**Effect of the pulse of the external magnetic field on a magnetically ordered system at low temperatures**  
 Fiz. Nizk. Temp., 2016, V. 42, #4, 370-375 (in Russian); Low Temp. Phys., 2016, V. 42, #4, 286-289.
- [42] G.A. Zvyagina, K.R. Zhekov, I.V Bilych, M.P. Kolodyazhnaya, A.A. Zvyagin, A.N. Bludov, V.A. Pashchenko, and I.A. Gudim  
**Low-temperature magnetic phase transitions in the  $\text{Nd}_{09}\text{Dy}_{0.1}\text{Fe}_3(\text{BO}_3)_4$  multiferroic. Part1. Transitions induced by the magnetic field directed along the axis of the trigonal symmetry. Spontaneous transitions taking place with the changes of  $T$**   
 Fiz. Nizk. Temp., 2016, V. 42, #4, 353-361 (in Russian); Low Temp. Phys., 2016, V. 42, #4, 273-279.
- [43] S. Bhattacharjee, S. Erfanifam, E.L. Green, M. Naumann, Z. Wang, S. Granovsky, M. Doerr, J. Wosnitza, A.A. Zvyagin, R. Moessner, A. Maljuk, S. Wurmehl, B. Bükhner, and S. Zherlitsyn  
**Acoustic signatures of the phases and phase transitions in  $\text{Yb}_2\text{Ti}_2\text{O}_7$**   
 Phys. Rev. B, 2016, V. 93, #14, 144412.
- [44] A.N. Ponomaryov, M. Ozerov, L. Zviagina, J. Wosnitza, K.Yu. Povarov, F. Xiao, A. Zheludev, C. Landee, E. Čížmár, A.A. Zvyagin, and S. Zvyagin  
**Electron spin resonance in a strong rung spin-1/2 Heisenberg ladder**  
 Phys. Rev. B, 2016, V. 93, #13, 134416.
- [45] A.A. Zvyagin  
**Pulse dynamics of quantum systems with pairing**  
 Phys. Rev. B., 2015, V. 92, #18, 184507.
- [46] A.A. Zvyagin  
**Relaxation of magnetic systems after sudden magnetic field changes**  
 Fiz. Nizk. Temp., 2015, V. 41, #9, 938-941 (in Russian); Low Temp. Phys. , 2015, V. 41, # 9, 730-732.
- [47] A.A. Zvyagin  
**Magnetization of a quantum spin system induced by a linear polarized laser**  
 Phys. Rev. B, 2015, V. 92, 054405..
- [48] A.A. Zvyagin  
**Majorana bound states in the finite-length chain**  
 Fiz. Nizk. Temp., 2015, V. 41, #8, 806-811; Low Temp. Phys. , 2015, V. 41, # 8, 625-629 .
- [49] V.A. Bedarev, M. I. Paschenko, M.I. Kobets, K.G. Dergachev, E.N. Khatsko, S.L. Gnatchenko, A.A. Zvyagin, T. Zajarniuk, A. Szewczyk, M.U. Gutowska, L.N. Bezmaternykh, and V.L. Temerov  
**Low-temperature magnetic phase transition in aluminum borate  $\text{TbAl}_3(\text{BO}_3)_4$**   
 Fiz. Nizk. Temp., 2015, V. 41, #7, 687-690 (in Russian); Low Temp. Phys. , 2015, V. 41, # 7, 534-536.

- [50] S. Zherlitsyn, V Tsurkan, A.A. Zvyagin, S. Yasin, S. Erfanifam, R. Beyer, M. Naumann, E. Green, J. Wosnitza, and A. Loidl  
**Novel phase transition and metastable regions in the frustrated magnet  $\text{CdCr}_2\text{O}_4$**   
 Phys. Rev. B, 2015, V. 91, 060406(R).
- [51] P. Schlottmann and A.A. Zvyagin  
**Threshold singularities in a Fermi gas with attractive potential in one dimension**  
 Nucl. Phys. B, 2015, V. 892, 269-287.
- [52] A.A. Zvyagin and H. Johannesson  
**Spin-orbit and impurity scattering in an integrable electron model: Exact results for dynamic correlations**  
 Phys. Rev. B, 2014, V.89, #20, 205135.
- [53] P. Schlottmann and A.A. Zvyagin  
**Superfluid instability in ultra-cold gas of fermionic atoms with attractive potential in a one dimensional trap**  
 J. Phys.: Conf. Ser., 2014, V.529, 012013.
- [54] S. Erfanifam, S. Zherlitsyn, S. Yasin, Y. Skourski, J. Wosnitza, A.A. Zvyagin, P. McClarty, R. Moessner, G. Balakrishnan, and O. A. Petrenko  
**Ultrasonic investigations of the spin ices  $\text{Dy}_2\text{Ti}_2\text{O}_7$  and  $\text{Ho}_2\text{Ti}_2\text{O}_7$  in and out of equilibrium**  
 Phys. Rev. B, 2014, V.90, #6, 064409.
- [55] A.A. Zvyagin  
**Dynamics of the Kitaev chain model under parametric pumping**  
 Phys. Rev. B, 2014, V.90, #1, 014507.
- [56] A.A. Zvyagin  
**Longitudinal spin pumping and topological superconductivity: Search for Majorana edge states**  
 Phys. Rev. B, 2014, V.89, #21, 214420.
- [57] G.A. Zvyagina, K.R. Zhekov, I.V. Bilych, A.A. Zvyagin, A.N. Bludov, V.A. Pashchenko, and I.A. Gudim  
**Magnetic field-induced phase transitions in the antiferromagnet  $\text{Nd}_{0.6}\text{Dy}_{0.4}\text{Fe}_3(\text{BO}_3)_4$**   
 Fiz. Nizk. Temp., 2014, V. 40, #2, 187-192; Low Temp. Phys., 2014, V. 40, #2, 146-150.
- [58] A.A. Zvyagin  
**Spin-orbit interaction in the supersymmetric t-J chain with a magnetic impurity**  
 Fiz. Nizk. Temp., 2014, V.40, #1, 83-91; Low Temp. Phys., 2014, V.40, #1, 65-72.
- [59] A.A. Zvyagin and P. Schlottmann  
**Effects of spin-orbit interaction in the Hubbard chain with attractive interaction: Application to confined ultracold fermions**  
 Phys. Rev. B, 2013, V.88, #20, 205127.
- [60] G.A. Zvyagina, K.R. Zhekov, I.V. Bilych, A.A. Zvyagin, I.A. Gudim, V.L. Temerov, and E.V. Eremin  
**Magnetoelastic studies of  $\text{Nd}_{0.75}\text{Dy}_{0.25}\text{Fe}_3(\text{BO}_3)_4$  in the external magnetic field: Magnetic phase transitions**  
 Fiz. Nizk. Temp., 2013, V.39, #11, 1202-1214; Low Temp. Phys., 2013, V.39, #11, 936-947.
- [61] H. Maeter, A.A. Zvyagin, H. Luetkens, G. Pascua, Z. Shermadini, R. Saint-Martin, A. Revcolevschi, C. Hess, B. Büchner, and H.-H. Klauss  
**Low temperature ballistic spin transport in the  $S=1/2$  antiferromagnetic Heisenberg chain compound  $\text{SrCuO}_2$**   
 J. Phys.: Condens. Matt., 2013, V.25, #36, 365601.

- [62] A.A. Zvyagin  
**Possibility of direct observation of Majorana fermions**  
 Phys. Rev. Lett., 2013, V.110, #21, 217207.
- [63] A.V. Andreev, S. Yasin, Y. Skourski, A.A. Zvyagin, S. Zherlitsyn, and J. Wosnitza  
**Magnetic and magnetoelastic properties of  $\text{UCo}_2\text{Si}_2$  as studied by high-field magnetization and ultrasound measurements**  
 Phys. Rev. B, 2013, V.87, #21, 214409.
- [64] A.A. Zvyagin  
**Critical exponents for a Hubbard chain with the spin-orbit interaction**  
 Phys. Rev. B, 2012, V.86, # 8, 085126.
- [65] P. Schlottmann and A.A. Zvyagin  
**Fermi gas with attractive potential and spin  $S=3/2$  in one-dimensional trap: Response functions for superfluidity and FFLO signatures**  
 Phys. Rev. B, 2012, V.85, #20, 205129.
- [66] A.A. Zvyagin  
**Low energy dynamics of a magnetic impurity in a quantum spin chain: Role of local levels**  
 Phys. Rev. B, 2012, V.85, #13, 134435.
- [67] A.A. Zvyagin  
**NMR relaxation rate of a quantum spin chain with an impurity**  
 Fiz. Nizk. Temp., 2012, V.38, #7, 808-815; Low Temp. Phys., 2012, V.38, #7, 639-644.
- [68] G.A. Zvyagina, K.R. Zhekov, A.A. Zvyagin, I.A. Gudim, and I.V. Bilych  
**Magnetic anisotropy in the basal plane of rare-earth ferroborate  $\text{Nd}_{0.75}\text{Dy}_{0.25}\text{Fe}_3(\text{BO}_3)_4$**   
 Fiz. Nizk. Temp., 2012, V.38, #5, 571-575 (in Russian); Low Temp. Phys., 2012, V.38, #5 446-449.
- [69] A.A. Zvyagin, S. Yasin, Y. Scourski, A.V. Andreev, S. Zherlitsyn and J. Wosnitza  
**High field magnetism and magnetoacoustics in  $\text{UCu}_{0.95}\text{Ge}$**   
 J. Alloys Comp., 2012, V.528, 51-57.
- [70] P. Schlottmann and A.A. Zvyagin  
**Fermi gas with attractive potential and arbitrary spin in a one-dimensional trap: Phase diagram for  $S=3/2, 5/2, 7/2$ , and  $9/2$**   
 Phys. Rev. B, 2012, V.85, #2, 024535.
- [71] A.A. Zvyagin  
**Macroscopic thermal entanglement in a spin chain caused by the magnetic field: Inhomogeneity effect**  
 Fiz. Nizk. Temp., 2012, V.38, #3, 266-272; Low Temp.Phys., 2012, V.38. #3, 210-215.
- [72] A.A. Zvyagin  
**Magnetic field effect on the macroscopic thermal entanglement of a dimerized chain of qubits**  
 Phys. Rev. B, 2011, V.84, #21, 214431.
- [73] S. Erfanfiam, S. Zherlitsyn, J. Wosnitza, R. Moessner, O.A. Petrenko, S. Balakrishnan, and A.A. Zvyagin  
**Intrinsic and extrinsic non-stationary field-driven processes in the spin ice compound  $\text{Dy}_2\text{Ti}_2\text{O}_7$**   
 Phys. Rev. B, 2011, V.84, #22, 220404(R).
- [74] G.A. Zvyagina, K.R. Zhekov, I.V. Bilych, A.A. Zvyagin, I.A. Gudim, V.L. Temerov  
**Magnetic phase transitions in the  $\text{NdFe}_3(\text{BO}_3)_4$  multiferroic**  
 Fiz. Nizk. Temp., 2011, V.37, #12, 1269-1281; Low Temp. Phys., 2011, **37**, #12, 1010-1020.

- [75] S. Yasin, A.V. Andreev, Y. Skourski, J. Wosnitza, S. Zherlitsyn, and A.A. Zvyagin  
**Magneto-acoustic study of single-crystalline  $\text{UCu}_{0.95}\text{Ge}$**   
 Phys. Rev. B., 2011, V.83, #13, 134401.
- [76] H. Kühne, A.A. Zvyagin, M. Günter, A.P. Reyes, P.L. Kuhns, M.M. Turnbull, C.P. Landee, and H.-H. Klauss  
**Dynamics of the Heisenberg spin chain in the quantum critical regime: NMR experiment versus effective field theory**  
 Phys. Rev. B, 2011, V.83, #10, 100407(R).
- [77] A.A. Zvyagin  
**Low-energy dynamical characteristics of a quantum spin chain with magnetic impurities**  
 Phys. Rev. B, 2010, V.82, #10, 104403.
- [78] M. Ozerov, A.A. Zvyagin, E. Čížmár, J. Wosnitza, R. Feyerherm, F. Xiao, C.P. Landee, and S.A. Zvyagin  
**Spin Dynamics in  $S=1/2$  Chains with Next-Nearest-Neighbor Exchange Interactions**  
 Phys. Rev. B, 2010, V.82, #1, 014416.
- [79] A.A. Zvyagin  
**Magnetic phase diagram of a quasi-one-dimensional quantum spin system**  
 Phys. Rev. B, 2010, V.81, #22, 224407.
- [80] A. Sycheva, O. Chiatti, J. Wosnitza, S. Zherlitsyn, A.A. Zvyagin, R. Coldea, and Z. Tylczynski  
**Magnetoacoustics of the low-dimensional quantum antiferromagnet  $\text{Cs}_2\text{CuCl}_4$  with spin frustration**  
 J. Low Temp. Phys., 2010, V.159, #1-2, 109-113.
- [81] G.A. Zvyagina, K.R. Zhekov, A.A. Zvyagin, I.V. Bilych, L.N. Bezmaternykh, I.A. Gudim  
**The low temperature of magnetoelastic characteristics of preseodymium ferroborate**  
 Fiz. Nizk. Temp., 2010, V.36, #4, 376-384 (in Russian); Low Temp. Phys., 2010, V.36, #4 296-302.
- [82] G.A. Zvyagina, K.R. Zhekov, I.V. Bilych, A.A. Zvyagin, L.N. Bezmaternykh, I.A. Gudim  
**Low temperature phase transitions in rare-earth ferroborate  $\text{Nd}_{0.75}\text{Dy}_{0.25}\text{Fe}_3(\text{BO}_3)_4$**   
 Fiz. Nizk. Temp., 2010, V.36, #3, 352-355 (in Russian); Low Temp. Phys., 2010, V.36, #3, 279-281.
- [83] A. Sycheva, O. Chiatti, J. Wosnitza, S. Zherlitsyn, A.A. Zvyagin, R. Coldea, and Z. Tylczynski  
**Short-range correlations in quantum frustrated spin system**  
 Phys. Rev. B, 2009, V.80, #22, 224414.
- [84] A.A. Zvyagin  
**Thermal entanglement of spin chains with quantum critical behavior**  
 Phys. Rev. B, 2009, V.80, #14, 144408.
- [85] A.A. Zvyagin, V. Kataev, and B. Büchner  
**Theory of the electron spin resonance in heavy fermion systems with non-Fermi-liquid behavior**  
 Phys. Rev. B, 2009, V.80, #2, 024412.
- [86] A.A. Zvyagin  
**Quantum phase transitions in an exactly solvable quantum spin biaxial model with multiple spin interactions**  
 Phys. Rev. B, 2009, V.80, #1, 014414.
- [87] A.A. Zvyagin and V.O. Cheranovskii  
**Elementary excitations and thermodynamics of zig-zag spin ladders with alternating nearest neighbor exchange interactions**  
 Fiz. Nizk. Temp., 2009, V.35, #6, 578-592; Low Temp. Phys., 2009, V.35, #6, 455-467.



- [88] V. Kataev, U. Shaufuß, B. Büchner, A.A. Zvyagin, J. Sichelschmidt, J. Wykhoff, C. Krellner, C. Geibel, and F. Steglich  
**High-field ESR study of the Kondo lattice system  $\text{YbRh}_2\text{Si}_2$**   
 J. Phys.: Conf. Ser., 2009, V.150, 042085.
- [89] O. Chiatti, S. Zherlitsyn, A. Sytcheva, J. Wosnitza, A.A. Zvyagin, V.S. Zapf, M. Jaime, and A. Paduan-Filho  
**Ultrasonic investigation of  $\text{NiCl}_2\text{-4SC}(\text{NH}_2)_2$**   
 J. Phys. Conf. Ser., 2009, V.150, 042016.
- [90] A.A. Zvyagin  
**Theory of the electron spin resonance in quantum spin chains with nearest and next-nearest neighbor and alternating interactions**  
 Phys. Rev. B, 2009, V.79, #6, 064422.
- [91] U. Shaufuß, V. Kataev, A.A. Zvyagin, B. Büchner, J. Sichelschmidt, J. Wykhoff, C. Krellner, C. Geibel, and F. Steglich  
**Evolution of the Kondo state of  $\text{YbRh}_2\text{Si}_2$  probed by high field ESR**  
 Phys. Rev. Lett., 2009, V.102, #7, 076405.
- [92] S. Zherlitsyn, O. Chiatti, A. Sytcheva, J. Wosnitza, A.A. Zvyagin, V.S. Zapf, M. Jaime, and A. Paduan-Filho  
**Ultrasonic investigation of  $\text{NiCl}_2\text{-4SC}(\text{NH}_2)_2$  in the vicinity of the quantum critical points**  
 J. Phys. Conf. Ser., 2009, V.145, #1, 012069.
- [93] V. Gnezdilov, P. Lemmens, A.A. Zvyagin, V.O. Chervanovskii, K. Lamonova, Yu.G. Pashkevich, R.K. Kremer, and H. Berger  
**Magnetic crossover and complex excitation spectrum of the ferromagnetic/antiferromagnetic spin-1/2 chain system  $\alpha\text{-TeVO}_4$**   
 Phys. Rev. B, 2008, V.78, #18, 184407.
- [94] G.A. Zvyagina, K.R. Zhekov, L.N. Bezmaternykh, I.A. Gudim, I.V. Bilych, and A.A. Zvyagin  
**Magnetoelastic effects in terbium ferroborate**  
 Fiz. Nizk. Temp., 2008, V.34, #11, 1142-1151 (in Russian); Low Temp. Phys., 2008, V.34, #11, 901-908.
- [95] O. Chiatti, A. Sytcheva, J. Wosnitza, S. Zherlitsyn, A.A. Zvyagin, V.S. Zapf, M. Jaime, and A. Paduan-Filho  
**Character of magnetic excitations in a quasi-one-dimensional antiferromagnet near the quantum critical points: Impact on magneto-acoustic properties**  
 Phys. Rev. B, 2008, V.78, #9, 094406.
- [96] A.A. Zvyagin and S.-L. Drechsler  
**Magnetic ordering of weakly coupled frustrated quantum spin chains**  
 Phys. Rev. B, 2008, V.78, #1, 014429.
- [97] A.A. Zvyagin  
**Thermal conductivity of a quantum spin-1/2 antiferromagnetic chain with magnetic impurities**  
 Fiz. Nizk. Temp. 2008, V.34, #3, 273-277; Low Temp. Phys. 2008, V.34, #3, 211-215.
- [98] A.A. Zvyagin  
**Re-distribution (condensation) of magnons in a ferromagnet under pumping**  
 Fiz. Nizk. Temp. 2007, V.33, #11, 1248-1252; Low Temp. Phys., 2007, V.33, #11, 948-951.
- [99] A.A. Zvyagin  
**Boundary bound states in the Bose-Hubbard-like chain**  
 Fiz. Nizk. Temp., 2007, V.33, #5, 597-600; Low Temp. Phys., 2007, V.33, #5, 448-450.

- [100] S.-L. Drechsler, O. Volkova, A.N. Vasiliev, N. Tristan, J. Richter, M. Schmitt, H. Rosner, J. Malek, R. Klingeler, A.A. Zvyagin, and B. Büchner  
**Frustrated cuprate route from antiferromagnetic to ferromagnetic spin-1/2 Heisenberg chains:  $\text{Li}_2\text{ZrCuO}_4$  as a missing link near a quantum critical point**  
 Phys. Rev. Lett., 2007, V.98, #7, 077202.
- [101] A.A. Zvyagin and G.A. Skorobogat'ko  
**To the mean-field theory of a two-sublattice antiferromagnet**  
 Fiz. Nizk. Temp., 2006, V.32, #7, 845-852; Low Temp. Phys., 2006, V.32, #7, 644-649.
- [102] A.A. Zvyagin and G.A. Zvyagina  
**Sound pumping in an alternating quantum spin chain**  
 Phys. Rev. B, 2006, V.73, #10, 104422.
- [103] A.A. Zvyagin  
**Dynamical characteristics of frustrated quantum spin systems**  
 Phys. Rev. B, 2006, V.73, #10, 104414.
- [104] A.A. Zvyagin and G.A. Skorobogat'ko  
**Exactly solvable quantum spin model with alternating and multiple spin exchange interactions**  
 Phys. Rev. B, 2006, V.73, #2, 024427.
- [105] A.A. Zvyagin  
**Quasi-one dimensional quantum spin systems: disorder and magnetic order**  
 Fiz. Nizk. Temp., 2006, V.32 #2, 214-218; Low Temp. Phys., 2006, V.32, #2, 158-161.
- [106] A.A. Zvyagin  
**Fluctuators and qubits: coherent quantum oscillations**  
 J. Phys.: Condensed Matter, 2005, V.17, #36, L385-L391.
- [107] A.A. Zvyagin  
**Quantum phase transitions in low dimensional quantum spin systems with incommensurate magnetic structures**  
 Phys. Rev. B, 2005, V.72, #6, 064419.
- [108] A.A. Zvyagin and A.V. Makarova  
**Low temperature electron spin resonance theory for systems with multichannel Kondo impurities**  
 J. Phys.: Condensed Matter, 2005, V.17, #7, 1251-1257.
- [109] A.A. Zvyagin and A.V. Makarova  
**Magnetic ordering caused by a disorder in quasi-one-dimensional spin systems and non-Fermi-liquid systems**  
 Fiz. Nizk. Temp., 2004, V.30, #10, 1095-1097; Low Temp. Phys., 2004, V.30, #10, 822-823.
- [110] A.A. Zvyagin and A.V. Makarova  
**Low temperature features of thermodynamics of an open isotropic Heisenberg chain**  
 Fiz. Nizk. Temp., 2004, V.30, #9, 974-977; Low Temp. Phys., 2004, V.30, #9, 733-735.
- [111] A.A. Zvyagin  
**To the theory of spin-charge separation in one-dimensional correlated electron systems**  
 Fiz. Nizk. Temp., 2004, V.30, #9 969-973; Low Temp. Phys., 2004, V.30, #10, 729-732.
- [112] A.A. Zvyagin and A.V. Makarova  
**Bethe ansatz study of the low-temperature thermodynamics of an open Heisenberg chain**  
 Phys. Rev. B, 2004, V.69, #21, 214430.

- [113] A.A. Zvyagin and A.V. Makarova  
**Low temperature behavior of disordered magnetic impurities: Distribution of effective Kondo temperatures**  
 Fiz. Nizk. Temp., 2004, V.30, # 6, 639-643; Low Temp. Phys., 2004, V.30, # 6, 479-482.
- [114] A.A. Zvyagin and A.V. Makarova  
**Néel temperature for undoped spin-Peierls quasi-one-dimensional model**  
 J. Phys.: Condensed Matter, 2004, V.16, #15, 2673-2680.
- [115] A.A. Zvyagin and A. Klümper  
**Quantum phase transitions and thermodynamics of quantum antiferromagnets with next-nearest-neighbor couplings**  
 Phys. Rev. B, 2003, V.68, #14, 144426.
- [116] A.A. Zvyagin  
**Pre-formed superconducting and quadrupolar fluctuations and heavy electron mass in an exactly solvable model**  
 Eur. Phys. J. B, 2003, V.34, #3, 275-280.
- [117] A.A. Zvyagin  
**Persistent currents in a lattice correlated electron ring with a magnetic impurity**  
 Eur. Phys. J. B, 2003, V.32, #3, 351-360.
- [118] P. Schlottmann and A.A. Zvyagin  
**t-J ring with an Anderson impurity: A model for a quantum dot**  
 Phys. Rev. B, 2003, V.67, #11, 115113.
- [119] A.A. Zvyagin and G.A. Zvyagina  
**Magnetic field-induced gap in quantum spin chains: EPR characteristics**  
 Acta Phys. Pol. B, 2003, V.34, #2, 1399-1402.
- [120] A.A. Zvyagin  
**Comment on “Néel order in doped quasi-one-dimensional antiferromagnets”**  
 Phys. Rev. Lett., 2003, V.90, #8, 089701.
- [121] A.A. Zvyagin  
**Non-Fermi-liquid versus Fermi liquid behavior of the generalized Anderson impurity**  
 Acta Phys. Pol. B, 2003, V.34, #2, 351-354.
- [122] A.A. Zvyagin and P. Schlottmann  
**Specific features of the Kondo effect for a magnetic impurity in a correlated electron model with Ising anisotropy**  
 Phys. Rev. B, 2002, V.66, #18, 184422.
- [123] A.A. Zvyagin  
**Role of open boundaries in the Bethe ansatz solution of the Kondo problem**  
 Phys. Rev. B, 2002, V.66, #17, 174430.
- [124] A.A. Zvyagin  
**Non-Fermi-liquid behavior: Exact results for ensembles of magnetic impurities**  
 Fiz.Nizk.Temp., 2002, V.28, #12, 1274-1291; Low Temp. Phys. 2002, V.28, #12, 907-920.
- [125] A.A. Zvyagin and G.A. Zvyagina  
**Electron paramagnetic resonance with parallel pumping in quantum spin chains with field-induced spin gap**  
 Phys. Rev. B, 2002, V.66, #1, 014442.

- [126] A.A. Zvyagin  
**From a Fermi liquid like- to a non-Fermi liquid behavior of the generalized Anderson impurity model: the Bethe ansatz solution**  
 Phys. Rev. B, 2002, V.65, #21, 214404..
- [127] P. Schlottmann and A.A. Zvyagin  
**Comment on “Integrable Kondo impurity in one-dimensional q-deformed t-J models”**  
 J. Phys. A., 2002, V.35, #29, 6191-6196.
- [128] A.A. Zvyagin  
**Comment on “Mesoscopic Kondo effects in an Aharonov-Bohm ring”**  
 Phys. Rev. Lett., 2001, V.87, #17, 179704.
- [129] A.A. Zvyagin  
**Bethe ansatz results for the photoemission electron spectroscopy of a degenerate Anderson model**  
 Phys. Rev. Lett., 2001, V.87, #11, 117601; E *ibid.* 2002, V.89, #25, 259901.
- [130] A.A. Zvyagin  
**Comment on “Phase diagram of an impurity in the spin-1/2 chain: Two-channel Kondo effect versus Curie law”**  
 Phys. Rev. Lett., 2001, V.87, #5, 059701.
- [131] A.A. Zvyagin  
**Two Fermi points in the exact solution of the Kondo problem**  
 Phys. Rev. B. (Rapid. Comm.), 2001, V.64, #6, 060405(R); E *ibid.*, 2002, V.65, #10, 109902(E).
- [132] P. Fulde, A.N. Yaresko, A.A. Zvyagin and Y. Grin  
**On the origin of heavy quasiparticles in  $\text{LiV}_2\text{O}_4$**   
 Europhys. Lett., 2001, V.54, #6, 779-785.
- [133] A.A. Zvyagin  
**Temperature dependence of the electron paramagnetic resonance linewidth in  $\text{NaV}_2\text{O}_5$**   
 Phys. Rev. B, 2001, V.63, #17, 172409.
- [134] A.A. Zvyagin and G.A. Zvyagina  
**Magneto-elastic effects in low-dimensional magnetic systems**  
 Fiz. Nizk. Temp., 2001, V.27, #4, 406-411; Low Temp. Phys., 2001, V.27, #4, 300-304.
- [135] A.A. Zvyagin, A. Klümper and J. Zittartz  
**Integrable correlated electron model with next-nearest-neighbor interactions**  
 Eur. Phys. J. B, 2001, V.19, #1, 25-36.
- [136] A.A. Zvyagin  
**Exact solution for a disordered correlated electron model**  
 Phys. Rev. B, 2001, V.63, #3, 033101.
- [137] A.A. Zvyagin  
**Non-Fermi-liquid behavior and superconducting fluctuations caused by a hybridization**  
 Phys. Rev. B, 2001, V.63, #1, 014503.
- [138] P. Schlottmann and A.A. Zvyagin  
**Closing of spin-gap and ferromagnetism induced by magnetic impurities: finite size effects and critical exponents**  
 J. Phys.: Condensed Matter, 2000, V.12, #50, 10457-10473.

- [139] A. Klümper and A.A. Zvyagin  
**Disordered magnetic impurities in uniaxial critical quantum spin chains**  
 J. Phys.: Condensed Matter, 2000, V.12, #40, 8705-8726.
- [140] A.A. Zvyagin  
**Spin gap, charge carriers and low temperature features of the behavior of  $\text{Yb}_4\text{As}_3$**   
 Phys. Rev. B, 2000, V.62, #18, 12175-12180.
- [141] A.A. Zvyagin and G.A. Zvyagina  
**Staggered magnetization and realization of Jahn-Teller-like effects**  
 Phys. Rev. B, 2000, V.62, #17, 11511-11516.
- [142] A.A. Zvyagin and P. Schlottmann  
**Magnetic impurities in a correlated electron system with spin-triplet pairing**  
 Nucl. Phys. B [FS], 2000, V.586, #3, 686-710.
- [143] A.A. Zvyagin  
**Universal low energy behavior of disordered quantum spin chains: exact analytic results**  
 Phys. Rev. B (Rapid Comm.). 2000, V.62, #10, R6069-R6072.
- [144] A.A. Zvyagin and P. Schlottmann  
**Spin-triplet pairs and magnetic correlations**  
 Physica B, 2000, V.284, Part 2, 1557-1558.
- [145] D.M. Apal'kov and A.A. Zvyagin  
**Spontaneous onset of interaction anisotropy in a strongly correlated quasi-one dimensional system of electrons**  
 Fiz. Nizk. Temp., 2000, V.26, #4, 385-393 (in Russian); Low Temp. Phys., 2000, V.26, # 4, 282-288.
- [146] G.A. Zvyagina and A.A. Zvyagin  
**Direct observation of a manifestation of magneto-elastic coupling in low-dimensional virtual ferroelastic**  
 Fiz. Nizk. Temp., 2000, V.26, #5, 482-493 (in Russian); Low Temp. Phys., 2000, V.26, #5, 354-362.
- [147] A.A. Zvyagin and P. Schlottmann  
**Spin-gapped two-band correlated electron system with magnetic impurities**  
 Nucl. Phys. B. [FS], 2000, V.565, #3, 555-571.
- [148] A.A. Zvyagin  
**Commensurate-incommensurate phase transitions for multi-chain quantum spin models: Exact results**  
 Fiz. Nizk. Temp., 2000, V.26, #2, 181-196; Low Temp. Phys. 2000, V.26, # 2, 134-146.
- [149] A.A. Zvyagin  
**Mixed valence of the integrable magnetic impurity in the correlated-electron hosts**  
 Phys. Rev. B, 1999, V.60, #22, 15266-15277.
- [150] A.A. Zvyagin and H. Johannesson  
**Superconductivity and antiferromagnetism: hybridization impurities in a two-band spin-gapped electron system**  
 Phys. Rev. B, 1999, V.60, #21, 14609-14612.
- [151] A.A. Zvyagin and P. Schlottmann  
**Exactly solvable model with spin-triplet pairs and magnetic correlations**  
 Phys. Rev. B, 1999, V.60, #9, 6292-6295.

- [152] A.A. Zvyagin and P. Schlottmann  
**One-dimensional heavy fermion lattice model**  
 J. Appl. Phys., 1999, V.85, #8, 5335-5337.
- [153] A.A. Zvyagin  
**Comment on “A new class of exactly solvable interacting fermion models in one dimension”**  
 Phys. Rev. Lett., 1999, V.82, #11, 2409.
- [154] A. Klümper and A.A. Zvyagin  
**Exact thermodynamics of disordered impurities in quantum spin chains**  
 Phys. Rev. Lett., 1998, V.81, #22, 4975-4979.
- [155] D.M. Apal'kov and A. A. Zvyagin  
**Instability of an one-dimensional quantum antiferromagnet under magnetic anisotropy**  
 Fiz. Nizk. Temp., 1998, V.24, #9, 844-850 (in Russian); Low Temp. Phys., 1998, V.24, # 9, 633-638.
- [156] A.A. Zvyagin and H. Johannesson  
**Hidden Kondo effect in a correlated electron chain**  
 Phys. Rev. Lett., 1998, V.81, #13, 2751-2754.
- [157] A.A. Zvyagin and D.M. Apal'kov  
**Spontaneous SU(2) symmetry breaking in one-dimensional quantum antiferromagnet**  
 Eur. Phys. J. B, 1998, V.5, #3, 565-569.
- [158] P. Schlottmann and A.A. Zvyagin  
**Exact solution for a degenerate Anderson impurity in the  $U \rightarrow \infty$  limit embedded into a correlated host**  
 Eur. Phys. J. B, 1998, V.5, #3, 325-335.
- [159] A.A. Zvyagin  
**Interference of “Coulomb blockade”-like and persistent current mesoscopic oscillations in quantum rings**  
 Mod. Phys. Lett. B, 1998, V.12, #6-7, 215-224.
- [160] A.A. Zvyagin and P. Schlottmann  
**Exact solution for a one-dimensional multichannel model of correlated electrons with an Anderson-like impurity**  
 J. Phys. A, 1998, V.31, #8, 1981-1987.
- [161] A.A. Zvyagin, H. Johannesson, and M. Granath  
**Multichannel Kondo screening in one-dimensional correlated electron system**  
 Europhys. Lett., 1998, V.41, #2, 213-218; *Addendum ibid.*, 2000, V.50, # 1, 125.
- [162] A.A. Zvyagin  
**Phase transitions and elementary excitations in zigzag like spin system**  
 Phys. Rev. B., 1998, V.57, #2, 1035-1039.
- [163] A.A. Zvyagin  
**Magnetic impurity in an open correlated electron chain**  
 Phys. Rev. Lett., 1997, V.79, #23, 4641-4644.
- [164] H. Frahm and A.A. Zvyagin  
**The open spin chain with impurity: an exact solution**  
 J. Phys.: Condensed Matter, 1997, V.9, #45, 9939-9946.

- [165] P. Schlottmann and A.A. Zvyagin  
**Coulomb blockade and persistent current oscillations in a quantum dot coupled to a metallic ring**  
 Phys. Lett. A, 1997, V.231, #1,2, 109-114.
- [166] P. Schlottmann and A.A. Zvyagin  
**Kondo impurity band in a one-dimensional correlated electron lattice**  
 Phys. Rev. B, 1997, V.56, #21, 13989-13998.
- [167] A.A. Zvyagin and P. Schlottmann  
**Magnetic impurity in the one-dimensional Hubbard model**  
 Phys. Rev. B, 1997, V.56, #1, 300-306.
- [168] P. Schlottmann and A.A. Zvyagin  
**Integrable mixed-valence impurity in a one-dimensional correlated electron lattice**  
 Nucl. Phys. B [FS], 1997, V.501, #3, 728-744.
- [169] A.A. Zvyagin and P. Schlottmann  
**Exact solution for an exchange impurity in one-dimensional correlated host**  
 J. Phys.: Condensed Matter, 1997, V.9, #17, 3543-3557; E *ibid.*, 1997, V.9, 6479.
- [170] P. Schlottmann and A.A. Zvyagin  
**Some transport properties of the two-channel Kondo impurity**  
 J. Appl. Phys., 1997, V.81, #8, 4173-4175.
- [171] H. Frahm and A.A. Zvyagin  
**Nonlinear boundary oscillations in strongly correlated electron quantum wires**  
 Phys. Rev. B, 1997, V.55, #3, 1341-1344.
- [172] P. Schlottmann and A.A. Zvyagin  
**Integrable supersymmetric t-J model with magnetic impurity**  
 Phys. Rev. B, 1997, V.55, #8, 5027-5036.
- [173] P. Schlottmann and A.A. Zvyagin  
**Two-channel Kondo impurity: some transport properties**  
 Physica B, 1997, V.230-232, 624-626.
- [174] A.A. Zvyagin and P. Schlottmann  
**Finite size effects in a metallic multichannel ring with Kondo impurity: Persistent currents and magnetoresistance**  
 Phys. Rev. B, 1996, V.54, #21, 15191-15199.
- [175] A.A. Zvyagin, T.V. Bandos, and P. Schlottmann  
**Persistent current oscillations in a metallic ring embedded a quantum dot**  
 Czechoslovak J. Phys., 1996, V.46, Suppl. 4, 2409-2410.
- [176] A.A. Zvyagin and H. Johannesson  
**Comment on “Quantum coherence in an exactly solvable one-dimensional model with defects”**  
 Europhys. Lett., 1996, V.35, #2, 151-152.
- [177] P. Schlottmann and A.A. Zvyagin  
**Aharonov-Bohm oscillations at finite temperature**  
 Journal of Applied Physics, 1996, V.79, #8, 5419-5421.

- [178] A.A. Zvyagin  
**Spin gap for multichain lattice and quantum spin model linearized about Fermi points**  
 Pis'ma v Zh. Eksp. Teor. Fiz., 1996, V.63, #3, 192-196; JETP Letters, 1996, V.63, #3, 204-208.
- [179] A.A. Zvyagin and T.V. Bandos  
**Level crossing and microscopic oscillations of persistent currents in Hubbard model with gravitation**  
 Zh. Eksp. Teor. Fiz., 1996, V.109, #1, 256-264 (in Russian); JETP, 1996, V.82, #1, 135-139.
- [180] A.A. Zvyagin  
**Exactly solvable multichain supersymmetric t-J model**  
 Phys. Rev. B, 1995, V.52, #21, 15050-15053.
- [181] A.A. Zvyagin and P. Schlottmann  
**Aharonov-Casher effect in the Heisenberg spin chain with many impurities**  
 Phys. Rev. B, 1995, V.52, #9, 6569-6574.
- [182] A.A. Zvyagin and T.V. Bandos  
**Microscopic fractional persistent current oscillations in a metallic ring with the Anderson impurity**  
 Mod. Phys. Lett. B, 1995, V.9, #19, 1253-1258.
- [183] A.A. Zvyagin and Ya.Yu. Segal  
**Low temperature magnetization behavior features of one-dimensional alternating spin chain with impurity**  
 Fiz. Nizk. Temp., 1995, V.21, #10, 1068-1074 (in Russian); Low Temp. Phys., 1995, V.21, #10, 822-826.
- [184] A.A. Zvyagin  
**Quantum features of the two types of Dzyaloshinskii-Moriya coupling in antiferromagnetic spin chain**  
 Fiz. Nizk. Temp. 1995, V. 21, #8, 825-829; Low Temp. Phys. 1995, V.21, #8, 636-639.
- [185] A.A. Zvyagin  
**Thermodynamics of the exactly solvable two-chain and multichain quantum spin model**  
 Phys. Rev. B., 1995, V.51, #18, 12579-12584.
- [186] A.A. Zvyagin and T.V. Bandos  
**Microscopic oscillations of persistent currents in a metal ring with a magnetic impurity (the Kondo case)**  
 Pis'ma v Zh. Eksp. Teor. Fiz., 1995, V.61, #8, 662-665 (in Russian); JETP Letters, 1995, V.61, #8, 682-685.
- [187] A.A. Zvyagin  
**Quantum topological effects in a metallic ring with the Anderson impurity**  
 Fiz. Nizk. Temp. 1995, V.21, #4, 446-450; Low Temp. Phys. 1995, V.21, #4, 349-352.
- [188] A.A. Zvyagin  
**Antichirality and elementary excitations of effectively 2D quantum frustrated antiferromagnetic systems**  
 Pis'ma Zh. Eksp. Teor. Fiz., 1994, V.60, #8, 563-568 (in Russian); JETP Letters, 1994, V.60, #8, 580-585.
- [189] A.A. Zvyagin and I.N. Karnaukhov  
**Spin and charge persistent currents in metallic ring with impurity**  
 Mod. Phys. Lett. B, 1994, V.8, #14-15, 937-947.
- [190] A.A. Zvyagin and T.V. Bandos  
**Quantum topological effects in a Kondo-impurity metal**  
 Fiz. Nizk. Temp. 1994, V.20, #3, 280-282 (in Russian); Low Temp. Phys. 1994, V.20, #3, 222-223.



- [191] A.A. Zvyagin and Ya.Yu. Segal  
**Longitudinal pumping in a biaxial spin chain with site spin  $S=1$**   
 Fiz. Nizk. Temp. 1993, V.19, #12, 1328-1336 (in Russian); Low Temp. Phys. 1993, V.19, #12, 941-948.
- [192] A.A. Zvyagin, Ya.Yu. Segal, and V.M. Tsukernik  
**To the theory of a spin antiferromagnetic chain with nodal spin  $S=1$**   
 Fiz. Nizk. Temp. 1993, V.19, #9, 995-1001 (in Russian); Low Temp. Phys. 1993, V.19, #9, 707-711.
- [193] V.Yu. Popkov and A.A. Zvyagin  
**“Antichiral” exactly solvable effectively two-dimensional quantum spin model**  
 Phys. Lett. A, 1993, V.175, #5, 295-298.
- [194] A.A. Zvyagin, Ya.Yu. Segal, and V.M. Tsukernik  
**Transient state and steady-state magnetization in a one-dimensional magnet under application of magnetic field**  
 Fiz. Nizk. Temp. 1993, V.19, #4, 387-394 (in Russian); Low Temp. Phys. 1993, V.19, #4, 272-277.
- [195] A.S. Rozhavsky, A.A. Zvyagin, and A.M. Zagoskin  
**Magnetic-field dependence of cyclotron masses in heavy-fermion conductors in a two-band hybridization model**  
 Physica Scripta 1993, V.48, #3, 382-384.
- [196] A.A. Zvyagin  
**Nonforse topological effect of electromagnetic field on an attractive Hubbard chain**  
 Zh. Eksp. Teor. Fiz. 1993, V.103, #1, 307-315 (in Russian); JETP, 1993, V.76, #1, 167-171.
- [197] A.A. Zvyagin, I.V. Krive, and A.S. Rozhavsky  
**The Aharonov-Casher effect and a new type of magnetic oscillations in conductors**  
 Fiz. Nizk. Temp. 1993, V.19, #1, 99-101 (in Russian); Low Temp. Phys. 1993, V.19, #1, 71-72.
- [198] A.A. Zvyagin, Ya.Yu. Segal, and V.M. Tsukernik  
**Saturation effect under longitudinal pumping in a biaxial two-sublattice spin chain**  
 Fiz. Nizk. Temp. 1992, V.18, #12, 1348-1356 (in Russian); Sov. J. Low Temp. Phys. 1992, V.18, #12, 940-946.
- [199] A.A. Zvyagin, Ya.Yu. Segal, and V.M. Tsukernik  
**Effect of nonresonance interaction of an alternating magnetic field with the magnon system on the parametric instability level**  
 Fiz. Nizk. Temp. 1992, V.18, #9, 983-986 (in Russian); Sov. J. Low Temp. Phys. 1992, V.18, #9, 690-692.
- [200] A.A. Zvyagin  
**Exactly solvable models of the effectively two-dimensional Luttinger liquids**  
 Fiz. Nizk. Temp. 1992, V.18, #9, 1029-1034 (in Russian); Sov. J. Low Temp. Phys. 1992, V.18, #9, 723-726.
- [201] A.A. Zvyagin  
**Quantum features of multisublattice spin chain behavior**  
 Fiz. Nizk. Temp. 1992, V.18, #7, 788-790. (in Russian); Sov. J. Low Temp. Phys. 1992, V.18, #7, 558-560.
- [202] A.A. Zvyagin and I.V. Krive  
**Aharonov-Casher effect in the repulsive Hubbard model**  
 Zh. Eksp. Teor. Fiz. 1992, V.102, #4(10), 1376-1380 (in Russian); Sov. Phys JETP, 1992, V.75, #4, 745-747.
- [203] A.A. Zvyagin  
**Parametric sound pumping in the  $S = 1/2$  spin chain**  
 Phys. Rev. B, 1992, V.45, #22, 12917-12920.

- [204] I.V. Krive and A.A. Zvyagin  
**Aharonov-Casher effect in half-integer spin antiferromagnet**  
 Mod. Phys. Lett. B, 1992, V.6, #14, 871-878.
- [205] A.E. Borovik, A.A. Zvyagin, V.Yu. Popkov, and Yu.M. Strzhemechny  
**Exactly solvable multichain quantum model**  
 Pisma Zh. Eksp. Teor. Fiz., 1992, V.55, #5, 292-296 (in Russian); JETP Letters, 1992, V.55, #5, 292-295.
- [206] A.A. Zvyagin  
**Momentum oscillations in degenerated Hubbard chain**  
 Fiz. Nizk. Temp., 1991, V.17, #10, 1436-1439 (in Russian); Sov. J. Low Temp. Phys., 1991, V.17, #10, 779-781.
- [207] A.A. Zvyagin  
**Spin structure features of the multisublattice spin chain with Dzyaloshinskii-type coupling**  
 Phys. Lett. A, 1991, V.158, #6,7, 333-336.
- [208] A.A. Zvyagin  
**The transverse structure of a spin chain with Dzyaloshinskii-Moriya type interaction**  
 J. of Phys.: Condensed Matter, 1991, V.3, #21, 3865-3867.
- [209] A.E. Borovik and A.A. Zvyagin  
**Jahn-Teller-type cooperative phase-transition in a low-dimensional spin system**  
 Fiz. Tv. Tela, 1991, V.33, #5, 1587-1589 (in Russian); Sov. Phys. Sol. St., 1991, V.33, #5, 894-895.
- [210] A.A. Zvyagin  
**The effect of impurities on planar structure of spin chain with Dzyaloshinsky interaction**  
 Fiz. Nizk. Temp., 1991, V.17, #1, 125-127 (in Russian); Sov. J. Low Temp. Phys., 1991, V.17, #1, 68-69.
- [211] A.A. Zvyagin  
**The Aharonov-Bohm effect in a Hubbard chain**  
 Fiz. Nizk. Temp., 1990, V.16, #10, 1299-1305 (in Russian); Sov. J. Low Temp. Phys., 1990, V.16, #10, 745-748.
- [212] A.A. Zvyagin, Yu. Sadaui, and V. M. Tsukernik  
**The relation between parametric-instability threshold of spin-waves and relaxation behavior**  
 Fiz. Nizk. Temp., 1990, V.16, #10, 1315-1319 (in Russian); Sov. J. Low Temp. Phys., 1990, V.16, #10, 754-756.
- [213] A.A. Zvyagin  
**To the theory of current states in the Hubbard chain**  
 Fiz. Tv. Tela, 1990, V.32, #5, 1546-1547 (in Russian); Sov. Phys. Sol. St., 1990, V.32, #5, 905-906.
- [214] A.A. Zvyagin  
**Characteristics of two-sublattice spin chain with coupling of Dzyaloshinsky type**  
 Zh. Eksp. Teor. Fiz., 1990, V.98, #4(10), 1396-1401 (in Russian); Sov. Phys. JETP, 1990, V.71, #4, 779-781.
- [215] A.A. Zvyagin  
**The effect of an Ising part of the exchange interaction on the spin chain parametric excitation**  
 Fiz. Nizk. Temp., 1990, V.16, #1, 80-88 (in Russian); Sov. J. Low Temp. Phys., 1990, V.16, #1, 41-45.
- [216] A.A. Zvyagin  
**Magnetic characteristics of a multisublattice spin chain**  
 Fiz. Tv. Tela, 1990, V.32, #1, 314-315 (in Russian); Sov. Phys. Sol. St., 1990, V.32, #1, 181-182.
- [217] A.A. Zvyagin  
**Plane-wave energy absorption by spin chain**  
 Fiz. Nizk. Temp., 1989, V.15, #10, 1086-1088 (in Russian); Sov. J. Low Temp. Phys., 1989, V.15, #10, 604-605.

- [218] A.A. Zvyagin  
**The ground state structure of a spin chain with the Dzyaloshinsky-type interaction**  
 Fiz. Nizk. Temp., 1989, V.15, #9, 977-979 (in Russian); Sov. J. Low Temp. Phys., 1989, V.15, #9, 540-541.
- [219] A.A. Zvyagin  
**Quantum features of the behaviour of magnetic chain with Dzyaloshinsky-type interaction**  
 Fiz. Nizk. Temp., 1988, V.14, #9, 934-941 (in Russian); Sov. J. Low Temp. Phys., 1988, V.14, #9, 513-516.
- [220] A.A. Zvyagin and V.M. Tsukernik  
**Quantum effects in the magnetic properties of a dimerized spin system with biaxial anisotropy**  
 Fiz. Tv. Tela, 1988, V.30, #9, 2857-2859 (in Russian); Sov. Phys. Sol. St., 1988, V.30, #9, 1649-1650.
- [221] A.A. Zvyagin  
**Absorption of longitudinal variable magnetic-field energy by antiferromagnetic dimerised spin chain**  
 Fiz. Nizk. Temp., 1988, V.14, #6, 661-664 (in Russian); Sov. J. Low Temp. Phys., 1988, V.14, #6, 366-367.
- [222] A.A. Zvyagin  
**Nonlinear response of superfluid He-3 fermions to rf longitudinal magnetic field**  
 Fiz. Nizk. Temp., 1988, V.14, #5, 459-466 (in Russian); Sov. J. Low Temp. Phys., 1988, V.14, #5, 252-255.
- [223] A.A. Zvyagin, P.N. Leifer, and A.M. Frishman  
**Parametric magnon instability in a plane-wave field**  
 Fiz. Tverd. Tela, 1988, V.30, #2, 604-606 (in Russian); Sov. Phys. Solid State, 1988, V.30, #2, 348-349.
- [224] A.A. Zvyagin and V.M. Tsukernik  
**Steady-state low-temperature parametric excitation of a spin chain**  
 Fiz. Nizk. Temp., 1985, V.11, #4, 450-453 (in Russian); Sov. J. Low Temp. Phys., 1985, V.11, #4, 242-243.
- [225] A.A. Zvyagin and V.M. Tsukernik  
**A change in equilibrium configuration of magnetic system during parametric excitation**  
 Fiz. Nizk. Temp., 1985, V.11, #1, 88-92 (in Russian); Sov. J. Low Temp. Phys., 1985, V.11, #1, 47-49.
- [226] A.A. Zvyagin and V.M. Tsukernik  
**The quantum ground state of a Heisenberg ferromagnet with an easy-plane type anisotropy**  
 J. Stat. Phys., 1985, V.38, #1/2, 405-411.
- [227] A.A. Zvyagin, A.M. Frishman, and V.M. Tsukernik  
**Non-linear effects in parametric excitation of paramagnetic ions in a crystal with rhombic symmetry**  
 Fiz. Nizk. Temp., 1983, V.9, #3, 308-313 (in Russian); Sov. J. Low Temp. Phys., 1983, V.9, #3, 155-157.
- [228] A.A. Zvyagin, V.Ya. Serebryannii, A.M. Frishman, and V.M. Tsukernik  
**Dynamics of spin-waves under parametric-excitation by a stepped periodic magnetic field of arbitrary amplitude**  
 Fiz. Nizk. Temp., 1982, V.8, #11, 1205-1209 (in Russian); Sov. J. Low Temp. Phys., 1982, V.8, #11, 612-614.