

Few-Body Systems Group (Sector 11) at BLTP, JINR

2012 Annual Activity Report

Contents

1	Staff of the BLTP Sector 11 in 2012	2
2	Main results	3
3	Publications	4
3.1	Journal publications	4
3.2	Articles in paper collections/conference proceedings	5
3.3	Articles accepted for publication	5
3.4	Preprints and data bases	5
3.5	Conference presentations	6
3.6	Seminar talks	8
4	Visits	8
4.1	Conferences, schools	8
4.2	Collaboration visits	9
5	Visitors	9
6	Teaching	10
7	Organizational activity	10

1 Staff of the BLTP Sector 11 in 2012

1. Vladimir B. Belyaev, Prof., Dr. Sc., Principal Researcher
2. Sabit S. Kamalov, Dr., Senior Researcher
3. Elena A. Kolganova, Dr., Senior Researcher
4. Vladimir N. Kondratyev, Dr., Senior Researcher (part-time)
5. Anastasia V. Malykh, Dr., Researcher
6. Vladimir S. Melezhik, Dr. Sc., Leading Researcher
7. Alexander K. Motovilov, Dr.Sc., Head of Sector
8. Vasily V. Pupyshev, Dr.Sc., Leading Researcher
9. Ivan I. Shlyk, M.Sc., Researcher
10. Evgeni A. Solov'ev, Dr.Sc., Leading Researcher

Artem A. Korobitsin (Ph.D. Student, since November 2012)

2 Main results

It is shown [BRST] that the process $e^- + A(Z) \rightarrow A(Z-2) + e^+$, which is an analogue of no- ν double beta-decay, can influence on the thermal properties of a strongly magnetized white dwarf. Observation of such a process can shed light on the existence of Majorana type neutrinos.

[BRST] V. B. Belyaev, P. Ricci, F. Šimkovic, and E. Truhlik, “The consequence of total lepton number violation in strongly magnetized white dwarfs”, [arXiv:1212.3155](https://arxiv.org/abs/1212.3155) [14 pages].

The properties of the P_{11} resonances (masses, widths and helicity amplitudes) are described by using Dubna-Mainz-Taipei (DMT) model for pion-nucleon scattering and pion electromagnetic production [YKT]. The extracted values agree well with PDG values. The pole is found corresponding to the Roper resonance and two additional resonances needed in DMT model. Predicted the indication for a narrow P_{11} resonance at around 1700 MeV with a width about 50 MeV in both πN and $\gamma\pi N$ reactions. The upgraded DMT model for the description of the $\gamma\pi$ reaction at threshold region is developed (see <http://wwwkph.kph.uni-mainz.de/MAID//dmt/dmt2001.html>).

[YKT] S. N. Yang, S. S. Kamalov, and L. Tiator, “ P_{11} resonances with Dubna-Mainz-Taipei dynamical model for πN scattering and pion electromagnetic production”, *AIP Conf. Proc.* **1432**, 293–296 (2012).

Paper [KRC] presents an illustration of using a quantum three-body code being prepared for public release. The code is based on iterative solving of the three-dimensional Faddeev equations. The code is easy to use and it allows users to perform highly-accurate calculations of quantum three-body systems. The previously known results for the He_3 ground state are well reproduced by the code.

[KRC] E. A. Kolganova, V. Roudnev, and M. Cavagnero, “Helium trimer calculations with a public quantum three-body code”, *Phys. Atom. Nucl.* **75**, 1240-1244 (2012).

A theoretical model has been developed that yields the shifts and widths of Feshbach resonances in an atomic waveguide [SMS]. This model is based on a multichannel approach for confinement-induced resonances (CIRs) and atomic transitions in the waveguides in the multimode regime. An innovation is that the single-channel scalar interatomic interaction is replaced by the four-channel tensorial potential modeling resonances of broad, narrow and overlapping character. As an input the experimentally known parameters of Feshbach resonances in the absence of the waveguide are used. Shifts and widths of s -, d - and g -wave magnetic Feshbach resonances of Cs atoms emerging in harmonic waveguides as CIRs are calculated as well as the resonant enhancement of the transmission at zeros of the free space scattering length. It was found that there is a linear dependence of the width of the resonance on the longitudinal atomic momentum and quadratic dependence on the waveguide width. The model suggested in [SMS] opens novel possibilities for quantitative studies of the scattering processes in ultracold atomic gases in waveguides beyond the framework of s -wave resonant scattering.

[SMS] S. Saeidian, V. S. Melezhik, and P. Schmelcher, “Shifts and widths of Feshbach resonances in atomic waveguides”, *Phys. Rev. A* **86**, 062713 (2012) [9 pages].

A sharp norm bound for variation of the spectral subspace in the off-diagonal subspace perturbation problem for a self-adjoint Hamiltonian has been completely proven in the case where the spectrum consists of two disjoint components one of which lies in a gap of the other one [AM]. This bound represents the a priori $\tan \Theta$ theorem, a new item that complements the list of celebrated trigonometric estimates for the subspace perturbation problem established by Davis and Kahan. The result obtained in [AM] is complete and final, admitting no further improvement.

[AM] S. Albeverio and A.K. Motovilov, “The a priori $\tan \theta$ theorem for spectral subspaces”, *Integral Equ. Oper. Theory* **73**, 413–430 (2012).

The linear version of the variable phase approach to the potential scattering theory is complemented by a new asymptotic method. This method is adopted for a quantum mechanical analysis and the construction of explicit low-energy approximations for the partial phase shifts, amplitudes, cross-sections and radial components of the wave function describing the scattering of a quantum particle by a spherically [Pu1] or axially [Pu2] symmetrical short-range potential. The construction of these approximations is reduced to the solution of the recurrence chain of energy independent systems. Each system contains two linear first-order differential equations.

[Pu1] V.V. Pupyshchev, “Scattering of a slow quantum particle by a central short-range potential”, *JINR Preprint P4-2012-101*. Submitted to *Physics of Atomic Nuclei*.

[Pu2] V.V. Pupyshchev, “Scattering of a slow quantum particle by an axially symmetrical short-range potential”, *JINR Preprint P4-2012-119*. Submitted to *Physics of Atomic Nuclei*.

3 Publications

3.1 Journal publications

1. S. Albeverio and A.K. Motovilov, “The a priori $\tan \theta$ theorem for spectral subspaces”, *Integral Equ. Oper. Theory* **73**, 413–430 (2012).
2. P. Giannakeas, V. S. Melezhik, and P. Schmelcher, “Analytical treatment of bosonic d -wave scattering in isotropic harmonic waveguides”, *Phys. Rev. A* **85**, 042703 (2012) [6 pages].
3. E. A. Kolganova, V. Roudnev, and M. Cavagnero, “Helium trimer calculations with a public quantum three-body code”, *Phys. Atom. Nucl.* **75**, 1240-1244 (2012).
4. V. N. Kondratyev, “Magic ultramagnetized nuclei in explosive nucleosynthesis”, *Phys. Atom. Nucl.* **78**, 1368–1372 (2012).
5. V. S. Melezhik, “Multi-channel computations in low-dimensional few-body physics”, *Lecture Notes in Computer Science* **7125**, 94–107 (2012).
6. S. Saeidian, V. S. Melezhik, and P. Schmelcher, “Shifts and widths of Feshbach resonances in atomic waveguides”, *Phys. Rev. A* **86**, 062713 (2012) [9 pages].
7. E. A. Solov’ev, “On the foundations of quantum physics”, *Physics Essays* **25**, 27-32 (2012).

3.2 Articles in paper collections/conference proceedings

1. V. N. Kondratyev, “Creation and transmutation of magnetized nuclei at explosively dense matter”, *EPJ Web of Conferences* **38**, 17008 (2012) [2 pages].
2. V. N. Kondratyev, “Probing the supernovae by radionuclides”, *Proceedings of the International Conference “Isomers in Nuclear and Interdisciplinary Research” (INIR-2011)*, JINR Publishing Department **E15, 18-2012-15**, Dubna, 2012. P. 91–107.
3. V. N. Kondratyev, V. V. Krylov, O. A. Bezshyyko, L. O. Golinka-Bezshyyko, and V. A. Osipov, “Response of magnetic nanoparticle assemblies”, *J. Phys.: Conf. Ser.* **393**, 012005 (2012) [4 pages].
4. V. S., Melezhik, “Nondirect product discrete variable representation in multidimensional quantum problems”, *AIP Conf. Proc.* **1479**, 1200–1203 (2012).
5. S. N. Yang, S. S. Kamalov, and L. Tiator, “ P_{11} resonances with Dubna-Mainz-Taipei dynamical model for πN scattering and pion electromagnetic production”, *AIP Conf. Proc.* **1432**, 293–296 (2012).

3.3 Articles accepted for publication

1. S. Albeverio and A. K. Motovilov, “Sharpening the norm bound in the subspace perturbation theory”, *Compl. Anal. Oper. Theory*, Online First; DOI: [10.1007/s11785-012-0245-7](https://doi.org/10.1007/s11785-012-0245-7).
2. V. V. Pupyshev, “Modeling of the proton-proton reaction in the electron gas”, *Vestnik MSTU “Stankin”* (accepted for publication).
3. V. V. Pupyshev, “Proton-hydrogen atom scattering in effective two-body model”, *Phys. Atom. Nucl.* (accepted for publication).
4. V. V. Pupyshev, “Proton-hydrogen reaction in effective two-body model”, *Phys. Atom. Nucl.* (accepted for publication).

3.4 Preprints and data bases

1. V. B. Belyaev, P. Ricci, F. Šimkovic, and E. Truhlik, “The consequence of total lepton number violation in strongly magnetized white dwarfs”, [arXiv:1212.3155](https://arxiv.org/abs/1212.3155) [14 pages].
2. O. I. Kartavtsev and A. V. Malykh, “Recent advances in description of few two-component fermions”, [arXiv:1211.5557](https://arxiv.org/abs/1211.5557) [14 pages].
3. P. Giannakeas, V. S. Melezhik, and P. Schmelcher, “Analytical treatment of bosonic d -wave scattering in isotropic harmonic waveguides”, [arXiv:1202.2298](https://arxiv.org/abs/1202.2298) [7 pages].
4. B. F. Irgaziev, V. B. Belyaev, and J.-U. Nabi, “Three-body calculation of the rate of reaction $p + p + e \rightarrow d + \nu_e$ in the Sun”, [arXiv:1212.3882](https://arxiv.org/abs/1212.3882) [8 pages].
5. A. K. Motovilov, “Comment on ‘The tan θ theorem with relaxed conditions’, by Y. Nakatsukasa”, [arXiv:1204.4441](https://arxiv.org/abs/1204.4441) [7 pages].

6. V. V. Pupyshev, “Scattering of a slow quantum particle by a central short-range potential”, [JINR Preprint P4-2012-101](#), Dubna, JINR, 2012.
7. V. V. Pupyshev, “Scattering of a slow quantum particle by an axially symmetrical short-range potential”, [JINR Preprint P4-2012-119](#), Dubna, JINR, 2012.
8. E. A. Solov’ev, “Physics and Metaphysics”, [arXiv:1212.1299](#) [6 pages].

3.5 Conference presentations

1. [V. B. Belyaev](#) and [B. Irgaziev](#), “Rate of the $p + p + e \rightarrow d + \nu$ reaction at the center of Sun conditions”, [International Workshop on Few-Body Systems](#) (Dubna, Russia, June 27–29, 2012), oral presentation.
2. [V. B. Belyaev](#), [B. Irgaziev](#), and [Jameel-Un Nabi](#), “Three-body treatment of the $ppe \rightarrow d + \nu$ process at Sun conditions”, [3rd South Africa – JINR Symposium “Few to Many Body Systems: Models, Methods and Applications”](#) (Stellenbosch, South Africa, November 27–30, 2012), oral presentation.
3. [V. B. Belyaev](#), [W. Sandhas](#), and [I. I. Shlyk](#), “3-body meson-nuclear clusters”, [48th Karpacz Winter School of Theoretical Physics “Cosmic Matter in Heavy-Ion Collision Laboratories”](#) (Łądek-Zdrój, Poland, February 4–11, 2012), poster.
4. [V. B. Belyaev](#), [I. I. Shlyk](#), and [W. Sandhas](#), “Bound states in the $\phi 2N$ systems”, [Russian-Ukrainian Seminar on Few-Body Problems with Strong and Coulomb Interactions](#) (Kiev, Ukraine, May 30 – 31 May 2012), invited talk.
5. [O. I. Kartavtsev](#) and [A. V. Malykh](#), “Recent investigations of the two-component three-fermion system in the universal limit of zero-range interactions”, [International Workshop on Few-Body Systems](#) (Dubna, Russia, June 27–29, 2012), oral presentation.
6. [E. A. Kolganova](#), “Helium trimer and universal correlations”, [Russian-Ukrainian Seminar on Few-Body Problems with Strong and Coulomb Interactions](#) (Kiev, Ukraine, May 30 – 31 May 2012), invited talk.
7. [E. A. Kolganova](#), [A. K. Motovilov](#), and [W. Sandhas](#), “The ^4He trimer as an Efimov System”, [International Workshop on Few-Body Systems](#) (Dubna, Russia, June 27–29, 2012), oral presentation.
8. [E. A. Kolganova](#), “Efimov properties of three-body systems”, [3rd South Africa – JINR Symposium “Few to Many Body Systems: Models, Methods and Applications”](#) (Stellenbosch, South Africa, November 27–30, 2012), oral presentation.
9. [O. P. Klimenko](#) and [E. A. Kolganova](#), “Rare gas clusters at ultra low energies”, [The International Summer School on Low-Dimensional Quantum Many-Body Systems](#) (Trier, Germany, August 16–21, 2012), poster presentation.
10. [O. P. Klimenko](#) and [E. A. Kolganova](#), “Rare gas clusters at ultra low energies”, [The 514th WE-Heraeus-Seminar “Quo vadis Bose-Einstein-Condensation?”](#) (Bad Honnef, Germany, August 21–25, 2012), poster presentation.

11. V. N. Kondratyev, “Creation and transmutation of magnetized nuclei at explosively dense matter”, [International Conference "Nuclear Structure and Related Topics" \(NSRT12\)](#) (Dubna, Russia, July 4-11, 2012), poster.
12. V. N. Kondratyev, ”Response of magnetic nanoparticle assemblies”, [International Conference DUBNA-NANO 2012](#) (Dubna, Russia, July 14–18, 2012), poster.
13. V. N. Kondratyev, “Magnetar crust magnetoemissions”, [The 4th International Conference “Current Problems in Nuclear Physics and Atomic Energy”](#) (Kiev, Ukraine, September 3–7, 2012), oral presentation.
14. V. N. Kondratyev and I. M. Kadenko, “Nuclear magics at creation and transmutation in magnetized explosively dense matter”, [The 4th International Conference “Current Problems in Nuclear Physics and Atomic Energy”](#) (Kiev, Ukraine, September 3–7, 2012), oral presentation.
15. V. S. Melezhik “Ultracold few-body processes in atomic waveguides”, [International Workshop on Dynamical Correlations in Quantum Matter: From Few- to Many-Body Systems](#) (May 05 – June 1, 2012, Hamburg, Germany), invited talk
16. V. S. Melezhik “Low-dimensional few-body physics in atomic traps”, [International Workshop on Few-Body Systems](#) (Dubna, Russia, June 27–29, 2012), oral presentation.
17. V. S. Melezhik, “Time-dependent approach to nuclear breakup and low-dimensional few-body systems”, [The 8th Balkan School on Nuclear Physics](#) (June 07 – 12, 2012, Blagoevgrad, Bulgaria), two invited lectures.
18. V. S. Melezhik, “Nondirect product discrete variable representation in multidimensional quantum problems”, [International Conference of Numerical Analysis and Applied Mathematics](#) (September 19 – 25, 2012, Kos, Greece), invited talk.
19. A. K. Motovilov, “A priori bounds on variation of the spectrum and spectral subspaces of few-body Hamiltonians under changing interaction potentials”, [Russian-Ukrainian Seminar on Few-Body Problems with Strong and Coulomb Interactions](#) (Kiev, Ukraine, May 30 – 31 May 2012), invited talk.
20. A. K. Motovilov, “A priori bounds on variation of the spectrum and spectral subspaces of few-body Hamiltonians”, [International Workshop on Few-Body Systems](#) (Dubna, Russia, June 27–29, 2012), oral presentation.
21. A. K. Motovilov, “The a priori $\tan \Theta$ theorem for spectral subspaces”, [Workshop on Spectral Theory and Differential Operators](#) (Graz, Austria, August 27–31, 2012), semi-plenary talk.
22. V. V. Pupyshev, “Elastic scattering of a quantum particle by a central potential”, [International Workshop on Few-Body Systems](#) (Dubna, Russia, June 27–29, 2012), oral presentation.
23. I. I. Shlyk, “Low energy ϕ -meson–deuteron scattering in frame of the AGS equations”, [International Workshop on Few-Body Systems](#) (Dubna, Russia, June 27–29, 2012), oral presentation.

24. E. A. Solov'ev, "Discrete representation for ionization process in three-body problem", [International Workshop on Few-Body Systems](#) (Dubna, Russia, June 27–29, 2012), oral presentation.

3.6 Seminar talks

1. V. S. Melezhik, "Low-dimensional quantum systems in atomic traps", Laboratory seminar, Bogoliubov Laboratory of Theoretical Physics, JINR, March 1, 2012.
2. V. V. Pupyshev, "Scattering of a slow quantum particle by an axially symmetrical short-range potential", Seminar on Few-Body Systems, Bogoliubov Laboratory of Theoretical Physics, JINR, November 13, 2012.
3. V. V. Pupyshev, "Effective range approximation in the problem of two-dimensional scattering by a short-range potential", Seminar on Few-Body Systems, Bogoliubov Laboratory of Theoretical Physics, November 27, 2012.

4 Visits

4.1 Conferences, schools

1. V. B. Belyaev, [The 3rd South Africa – JINR Symposium "Few to Many Body Systems: Models, Methods and Applications"](#) (Stellenbosch, South Africa), 26.11.2012–7.12.2012.
2. S. S. Kamalov, "The Low-Energy Frontier of the Standard Model: From Quarks and Gluons to Hadrons and Nuclei" – The Kick-Off Meeting and Summer School of the [Collaborative Research Center 1044](#) (Mainz, Germany), 03.09.2012–07.09.2012.
3. E. A. Kolganova, Russian-Ukrainian Seminar on Few-Body Problems with Strong and Coulomb Interactions (Kiev, Ukraine), 29.05.2012–31.05.2012).
4. E. A. Kolganova, Humboldt Colloquium "The Role of Fundamental Sciences in Society" (Moscow, Russia), 31.05.2012–02.06.2012.
5. E. A. Kolganova, [Advanced Studies Institute "Symmetries and Spin" \(SPIN-Praha-2012\)](#) (Prague, Czech Republic), 01.07.2012–08.07.2012.
6. E. A. Kolganova, [The 3rd South Africa - JINR Symposium "Few to Many Body Systems: Models, Methods and Applications"](#) (Stellenbosch, South Africa), 27.11.2012–30.11.2012.
7. V. S. Melezhik, [International Workshop on Dynamical Correlations in Quantum Matter: From Few- to Many-Body Systems](#) (Hamburg, Germany), 30.05.2012–06.06.2012.
8. V. S. Melezhik, [The 8th Balkan School on Nuclear Physics](#) (Blagoevgrad, Bulgaria), 03.07.2012–12.07.2012.
9. V. S. Melezhik, [International Conference of Numerical Analysis and Applied Mathematics](#) (Kos, Greece), 19.09.2012–25.09.2012.
10. A. K. Motovilov, Russian-Ukrainian Seminar on Few-Body Problems with Strong and Coulomb Interactions (Kiev, Ukraine), 28.05.2012–01.06.2012.

11. A. K. Motovilov, Workshop on Spectral Theory and Differential Operators (Graz, Austria), 27.08.2012–01.09.2012.
12. I. I. Shlyk, 48th Karpacz Winter School of Theoretical Physics “Cosmic Matter in Heavy-Ion Collision Laboratories” (Łądek-Zdrój, Poland), 04.02.2012–11.02.2012.
13. I. I. Shlyk, Russian-Ukrainian Seminar on Few-Body Problems with Strong and Coulomb Interactions (Kiev, Ukraine), 28.05.2012–01.06.2012.

4.2 Collaboration visits

1. V. B. Belyaev, Physics Institute, Bonn University, Bonn, Germany, 14.12.2011–31.01.2012.
2. S. S. Kamalov, Institute of Nuclear Physics, Mainz University, Mainz, Germany, 05.05.2012–05.06.2012.
3. S. S. Kamalov, Institute of Nuclear Physics, Mainz University, Mainz, Germany, 20.08.2012–15.09.2012.
4. E. A. Kolganova, Physics Institute, Bonn University, Bonn, Germany, 03.04.2012–11.04.2012.
5. E. A. Kolganova, Physics Institute, Bonn University, Bonn, Germany, 30.10.2012–15.11.2012.
6. V. S. Melezhik, Center of Quantum Optics, Physics Department, University of Hamburg, Hamburg, Germany, 23.01.2012–29.01.2012.
7. V. S. Melezhik, Center of Quantum Optics, Physics Department, University of Hamburg, Hamburg, Germany, 17.07.2012 - 27.08.2012.
8. A. K. Motovilov, Institute for Applied Mathematics, Bonn University, Bonn, Germany, 28.02.2012–26.04.2012.
9. A. K. Motovilov, Institute for Applied Mathematics, Bonn University, Bonn, Germany, 01.09.2012–08.09.2012.

5 Visitors

1. Tasko Grozdanov, Institute of Physics, Belgrade, Serbia, 25.06.2012–02.07.2012.
2. Tasko Grozdanov, Institute of Physics, Belgrade, Serbia, 20.10.2012–04.11.2012.
3. Bernard Pons, CELIA – University of Bordeaux, Talence, France, 26.06.2012–03.07.2012.
4. János Révai, Research Institute for Nuclear and Particle Physics, Budapest, Hungary, 20.06.2012–01.07.2012.
5. S. Saeidian, Institute for Advanced Studies in Basic Sciences, Zanjan, Iran, 04.04.2012–17.04.2012.

6. Nina Shevchenko, Institute of Nuclear Physics, Řež, Czech Republic, 20.06.2012–04.07.2012.
7. Werner Sandhas, Physics Institute, Bonn University, Bonn, Germany, 16.06.2012–01.07.2012.

6 Teaching

1. V. B. Belyaev: Ph.D. adviser of I.I.Shlyk, Researcher of BLTP, JINR.
2. V. B. Belyaev: Professor of the Dubna University, lecture course “Nuclear Astrophysics”.
3. E. A. Kolganova: Diploma (master thesis) adviser of A.A. Korobitsin, student of Dubna University, Dubna, and then Ph.D. student, UNC, JINR.
4. E. A. Kolganova: Bachelor Diploma adviser of O.P. Klimenko, student of Dubna University, Dubna.
5. E. A. Kolganova: Bachelor Diploma adviser of T.A. Alyab’eva, student of Dubna University, Dubna.
6. E. A. Kolganova: Dozent of the Dubna University, lecture course “Mathematical modeling and numerical methods” (February–June and September–December, 2012).
7. V. S. Melezhik: Professor of the Dubna University, lecture course “General physics”(all the academic year), lecture course “History and methodology of physics” (September–December 2012), lecture course “Modern problems of quantum physics” (September–December 2012).
8. V. S. Melezhik: Ph. D. Thesis co-adviser of Panagiotis Giannakeas, Ph.D. student at Institute of Laser Physics, University of Hamburg, Hamburg, Germany.
9. V. S. Melezhik: Diploma (master thesis) adviser of O. Koval and E. Koval, students of Dubna University, Dubna.
10. V. S. Melezhik: Diploma adviser (bachelor diploma) of N. Korshunova, student of Dubna University, Dubna.
11. A. K. Motovilov: Professor of the Dubna University, lectures and seminars on the course “Scattering theory for few-body systems” for 6th year students (September – December 2012).

7 Organizational activity

1. V. B. Belyaev: Member of the D. Sc. Panel of BLTP, JINR.
2. V. B. Belyaev: Member of the BLTP NTS.
3. V. B. Belyaev: Member of Organizing Committee, [International Workshop on Few-Body Systems](#) (Dubna, Russia, June 27–29, 2012).

4. E. A. Kolganova: Member of the [BLTP NTS](#).
5. E. A. Kolganova: Scientific Secretary of the Council for conferring of bachelor and master degrees at the Theoretical Physics Department, Dubna University.
6. E. A. Kolganova: Scientific Secretary, [International Workshop on Few-Body Systems](#) (27 – 29 June 2012, Dubna, Russia).
7. E. A. Kolganova: Scientific Secretary, [The 20th International Symposium on Spin Physics](#) (17 – 22 September 2012, Dubna, Russia).
8. E. A. Kolganova: Member of Organizing Committee, [Advanced Studies Institute on Symmetries and Spin](#) (1 – 8 July 2012, Prague, Czech Republic).
9. E. A. Kolganova: Member of Organizing Committee, [International Workshop on Classical and Quantum Integrable Systems](#) (23 – 27 January 2012, Dubna, Russia).
10. E. A. Kolganova: Member of Organizing Committee, [The 3rd South Africa - JINR Symposium “Few to Many Body Systems: Models, Methods and Applications”](#) (27 – 30 November 2012, Stellenbosch, South Africa).
11. E. A. Kolganova: Member of Organizing Committee, [X DIAS-TH Winter School on Theoretical Physics](#) (30 January – 6 February 2012, Dubna, Russia).
12. E. A. Kolganova: Support of the [BLTP Website](#).
13. A. V. Malykh: Secretary of the [Seminar on Few-Body Systems](#).
14. V. S. Melezhik: Member of the D. Sc. Panel of LIT, JINR.
15. V. S. Melezhik: Member of the BLTP Expert commission.
16. A. K. Motovilov: Member of Editorial Board of the “Few-Body Systems” journal.
17. A. K. Motovilov: Member of the BLTP NTS.
18. A. K. Motovilov: Chairman of Organizing Committee, [International Workshop on Few-Body Systems](#) (Dubna, Russia, June 27–29, 2012).
19. V. V. Pupyshev: Secretary of the BLTP Commission for Ph.D. (C.Sc) examinations.
20. V. V. Pupyshev: Member of Organizing Committee, [International Workshop on Few-Body Systems](#) (Dubna, Russia, June 27–29, 2012).
21. I. I. Shlyk: Member of Organizing Committee, [International Workshop on Few-Body Systems](#) (Dubna, Russia, June 27–29, 2012).