

**LABORATORY "THEORY OF ELEMENTARY PARTICLES"
INSTITUTE FOR NUCLEAR RESEARCH AND NUCLEAR ENERGY
BULGARIAN ACADEMY OF SCIENCES**

PUBLICATION ACTIVITY 2014

TOTAL NUMBER OF PAPERS (published and to be published): 53

TOTAL NUMBER OF CITATIONS (excluding self-citations): 385

1. List of scientific papers refereed and indexed in world-wide science research tracking and citation databases

a) Publishes papers

1. Lilia Anguelova, Peter Suranyi and L.C. Rohana Wijewardhana, Stability of D-brane embeddings in nontrivial backgrounds, JHEP 1401 (2014) 143 (ISSN 1126-6708, IF 5.618).

2. Lilia Anguelova, Peter Suranyi and L.C. Rohana Wijewardhana, On the Stability of D7 - anti-D7 Probes in Near-conformal Backgrounds, Nucl. Phys. B881 (2014) 309 (ISSN 0550-3213, IF 4.327)

3. V.K. Dobrev, Non-Relativistic Holography (A Group-Theoretical Perspective), Invited review, Int. J. Mod. Phys. **A29** (3&4) (2014) 1430001 (ISSN 0217-751X, IF 1.127).

4. V.K. Dobrev, Invariant Differential Operators for Non-Compact Lie Groups: the Reduced SU(3,3) Multiplets, Phys. Part. Nucl. Lett. **11** (7) 864–871 (2014) (ISSN 1547-4771, IF 0.672).

5. V.K. Dobrev, *Classification of Invariant Differential Operators for Non-Compact Lie Algebras via Parabolic Relations*, J. Phys.: Conf. Ser. **512** (2014) 012020; (ISSN 1742-6596).

6. V.K. Dobrev, Multiplet classification for SU(n,n), J. Phys.: Conf. Ser. **563** (2014) 012008, (ISSN 1742-6596).

7. E.I. Guendelman, E. Nissimov and S. Pacheva, "Charge-Confining Gravitational Electrovacuum Shock Wave", Mod. Phys. Lett. A 29 (2014) 1450020 [ISSN: 0217-7323, IF=1.11].

8. E.I. Guendelman, E. Nissimov, S. Pacheva and M. Vasilhoun, "A New Mechanism of Dynamical Spontaneous Breaking of Supersymmetry", Bulg. J. Phys. 41 (2014) 123-129 [ISSN: 1310-0157].

9. Changrim Ahn, Plamen Bozhilov, *String solutions in AdS₃ x S³ x T⁴ with NS-NS B-field*, Phys. Rev. **D90**, 066010 (2014), ISSN 1550-7998, IF 4.691

10. Changrim Ahn, **Plamen Bozhilov**, *Finite-size giant magnons on eta-deformed $AdS_5 \times S^5$* , **Phys. Lett. B737** 293-297 (2014), ISSN 0370-2693, IF 4.569
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14. Yazadjiev, S. S., **Doneva, D. D.**, Kokkotas, K. D., and Staykov, K. V., “*Non-perturbative and self-consistent models of neutron stars in R -squared gravity*” , **J. Cosmology Astropart. Phys.** **6**, 003 (2014), ISSN 1475-7516, IF: 5.877
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16. **B. Damyanov**, "Results on balanced products of the distributions x_{\pm}^a in Colombeau algebra $G(\mathbb{R}^m)$.", C. R. Acad. Bulg. Sci. **67** (2014) 1310-1331 [ISSN 1045-1052, IF 0.211]
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19. S.M.Bilenky and **E.Christova**, "The axial form factor and polarization of the final nucleon", Proc. XV Advanced Research Workshop on High Energy Physics (DSPIN-13), Dubna-2014, p.49; ISBN:978-5-9530-0377-3
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25. **Nevena Ilieva**, Damyan Grancharov, Peicho Petkov, Michael Kenn, Reiner Ribarics, and Wolfgang Schreiner, *Structure Analysis of HLA Complexes in the Presence of Co-Receptors*, In: Proc. Int. Conf. NMSCAA'14, May 19 – 22, 2014, Bansko, Bulgaria. K. Georgiev (Ed.) (Demetra Ltd, Sofia, 2014; ISBN: 978-954-91700-7-8), p. 47

26. P. Petkov, E. Lilkova, D. Grancharov, S. Markov, **N. Ilieva**, and L. Litov, *Libraries for treatment of electrostatic interactions for Intel Xeon Phi*, In: NMSCAA'14, K. Georgiev, Ed. (Demetra Ltd, Sofia, 2014; ISBN: 978-954-91700-7-8), p.93

b) Papers to be published

1. N. Aizawa and **V.K. Dobrev**,
Intertwining Operator Realization of anti de Sitter Holography,"
Rep. Math. Phys. accepted for publication, (ISSN 0034-4877, IF 0.756)

2. **V.K. Dobrev**,
Special Reduced Multiplets and Minimal Representations for $SO(p,q)$,
to appear in: Proceedings of the X International Workshop „Lie Theory and Its Applications in Physics, "Springer Proceedings in Mathematics and Statistics", Vol. 111) (Springer-Verlag, ISSN 2194-1009, ISBN 978-4-431-55284-0).

3. **V.K. Dobrev**,
Invariant Differential Operators for Non-Compact Lie Groups: the Reduced $SU(4,4)$ Multiplets, to appear in the Proceedings of "Third International School on Symmetry and Integrable Systems" and at "Humboldt Kolleg on Symmetry and Integrable Systems", Tsakhkadzor, Armenia, published by JINR publishing department.

4. **S. Stoimenov** and M. Henkel,
On Non-local Representations of the Ageing Algebra in $d \geq 1$ dimensions,
To appear in the Proceedings of the X International Workshop “ Lie Theory and its Applications in Physics, ed. V. Dobrev “ Springer Proceedings in Mathematics and Statistics”, Vol. 111, (Springer, Tokyo, Heidelberg, ISSN 2194-1009, ISBN 978-4-431-55284-0).

5. **S. Stoimenov** and M. Henkel,
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11. T. Popov. Parafermionic algebras, their modules and cohomologies, to appear in the Proceedings of the X International Workshop „Lie Theory and Its Applications in Physics, ed. V. Dobrev, "Springer Proceedings in Mathematics and Statistics", Vol. 111, (Springer, Tokyo, Heidelberg, ISSN 2194-1009, ISBN 978-4-431-55284-0).

12. N.M. Nikolov, Operadic Bridge Between Renormalization Theory and Vertex Algebras, to appear in: Proceedings of the X International Workshop „Lie Theory and Its Applications in Physics, ed. V. Dobrev, "Springer Proceedings in Mathematics and Statistics", Vol. 111, (Springer, Tokyo, Heidelberg, ISSN 2194-1009, ISBN 978-4-431-55284-0)

13. D. Nedanovski, Superfields and Vertex Algebras in Four Dimensions, to appear in: Proceedings of the X International Workshop „Lie Theory and Its Applications in Physics, ed. V. Dobrev, "Springer Proceedings in Mathematics and Statistics", Vol. 111, (Springer, Tokyo, Heidelberg, ISSN 2194-1009, ISBN 978-4-431-55284-0)

14. E. Leader, A. V. Sidorov and **D. B. Stamenov**, *New analysis concerning the strange quark polarization puzzle*, arXiv:1410.1657 [hep-ph] (to be published in Phys. Rev. D; ISSN: 1550-7998, IF: 4.691).

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4. List of citations (excluding self-citations) for 2014

Cited work: **V.K. Dobrev**, G. Mack, **V.B. Petkova**, S.G. Petrova and I.T. Todorov, On the Clebsch - Gordan expansion for the Lorentz group in n dimensions, Rep. Math. Phys. **9** (1976) 219-246. ISSN: 0034-4877

1. Khandker, Z.U., Li, D., Poland, D., Simmons-Duffin, D.,
N = 1 superconformal blocks for general scalar operators,
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Dynamical derivation of vacuum operator product expansion in euclidean conformal quantum field theory,
Phys. Rev. **D13** (1976) 887-912. ISSN: 1550-7998

2. A.V. Belitsky, S. Hohenegger, G.P. Korchemsky, E. Sokatchev, A. Zhiboedov,
From correlation functions to event shapes,
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3. M.S. Costa, V. Goncalves, J.Penedones,
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Comparison of lattice gauge theories with gauge groups SU(2) and Z_2 ,
Ann. Phys. 123 (1979) 442-467. ISSN: 0003-4916

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LIST OF PUBLICATIONS AND CITATIONS CROSS-LINKED IN THE ANNUAL REPORTS OF OTHER LABORATORIES OF THE INSTITUTE

1. List of scientific papers refereed and indexed in world-wide science research tracking and citation databases – cross-linked in Laboratory "Solitons, Coherence and Geometry"

a) Publishes papers

1. **A. Kyuldjiev**, V. Gerdjikov, M. Todorov, *Asymptotic Behavior of Manakov Solitons: Effects of Shallow and Wide Potential Wells and Humps*, in BGSIAM'13, 8th Annual Meeting of the Bulgarian Section of SIAM, December 18-19, 2013,

Institute of Mathematics and Informatics, BAS, Sofia, Cambridge Scholars Publishing, UK, 2014 (ISBN 978-1-4438-6401-5)

2. M. D. Todorov, V. S. Gerdjikov and A. Kyuldjiev, *Modeling interactions of soliton trains. Effects of external potentials*, AIP Conf. Proc. **1629** (2014) 186 (ISSN 0094-243X, SJR = 0.16)

2. List of scientific papers refereed and indexed in world-wide science research tracking and citation databases, which are (to be) published in journals with IF (Web of Science) or SJR (SCOPUS) – cross-linked in Laboratory "Solitons, Coherence and Geometry"

a) Publishes papers

1. M. D. Todorov, V. S. Gerdjikov and A. Kyuldjiev, *Modeling interactions of soliton trains. Effects of external potentials*, AIP Conf. Proc. **1629** (2014) 186-200 (ISSN 0094-243X, SJR = 0.16)

3. List of citations (excluding self-citations) for 2014 – cross-linked in Laboratory "Solitons, Coherence and Geometry"

Cited work: V.S. Gerdjikov, R.I. Ivanov, A.V. Kyuldjiev, *On the N -wave equations and soliton interactions in two and three dimensions*, Wave Motion **48** (2011) 791–804 (ISSN 0165-2125, IF=1.467)

1. Hai-Ping Zhu, *Spatiotemporal breather in diffraction decreasing media*, Wave Motion **51** (2014) 438–444
2. Xin Wang, Yuqi Li, Yong Chen, *Generalized Darboux transformation and localized waves in coupled Hirota equations*, Wave Motion **51** (2014) 1149–1160
3. L. Kavitha, M. Venkatesh, S. Dhamayanthi, D. Gopi, *Nonlinear refractive index induced collision and propagation*, Journal of Molecular Liquids **197** (2014) 142–151
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4. List of scientific papers refereed and indexed in world-wide science research tracking and citation databases – cross-linked in Laboratory "Nuclear Theory"

a) Publishes papers

1. N. Minkov, S. Drenska, P. Yotov, *Coherent quadrupole-octupole states from a SUSY-QM Hamiltonian hierarchy and shape invariance*, in Nuclear Theory: Proc. 33rd International Workshop on Nuclear Theory (Rila, Bulgaria, June 22-28, 2014), (Heron Press, Sofia), 32-44, ISSN: 1313-2822

5. List of citations (excluding self-citations) for 2014 – cross-linked in Laboratory "Nuclear Theory"

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