

CURRICULUM VITAE

Name: Vladimir BALAN
Institution: University Politehnica of Bucharest
Faculty of Applied Sciences,
Department Mathematics-Informatics,
Position: full professor

Contact

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Nationality and Citizenship: Romanian.
Languages: English and Russian (fluent).
Age/Date of Birth: 61 / October 2, 1958.

Education

- "Al.I.Cuza" University of Iasi, Faculty of Mathematics, Ph.D. in Mathematics 1992.
Title of thesis: Gauge Finslerian Theories and Applications to the Study of Physical Fields.
Scientific Advisor: Acad.Prof.Dr.Docent Radu Miron
- University of Kansas, Lawrence, U.S.A. (1997-1998), Fulbright postdoctoral scholarship, field of study:
theory of loop groups applied in differential geometry.
- Specialization in C.A.D. at Central Institute of Informatics - Bucharest, Specialization Diploma 1986.
- Univ.of Bucharest, Fac.of Mathematics Specialization in algebra-geometry 1982-1983, B.Sc. 1983.
- University of Bucharest, Faculty of Mathematics, 1978-1982
Merit National Student Scholarship - 1980-1981; M.Sc. Diploma of Honours 1982.
- "D.Cantemir" College, Bucharest, 1973-1977, Diploma of Maturity 1977 (promotion head).

Employment

- Full Professor at University Politehnica of Bucharest, Faculty of Applied Sciences,
Department Mathematics-Informatics, 2003-present
- Associate Professor , University Politehnica of Bucharest 1999-2003;
- Lecturer, University Politehnica of Bucharest 1995-1999;
- Teaching Assistant Professor , Politehnica Institute of Bucharest, 1990-1995;
- Princ.Sci.Researcher III, I.T.C.I. (Institute of Computer Technique and Informatics) Bucharest, 1990;
- Sci.Researcher, I.T.C.I. Bucharest, 1987-1990;
- Mathematician, I.T.C.I. Bucharest, 1985-1987; teacher 1983-1985.

Details of education and professional training

1. During **1978-1983** - student of the University of Bucharest.

- participated at the Yearly Scientific Sessions of the University, at the Scientific Seminar of Geometry "Gh. Vrănceanu" of the Department of Geometry, and at the Seminar of Finsler Spaces of the Faculty of Mathematics;
- during 1980 – 1981 I received Merit National Student Scholarship.

- obtained the Translator License (English and Russian languages, for the fields of Mathematical Sciences and Cybernetics), in 1983.
 - graduated the University in 1982, having the overall average mark 9.98 , and Diploma of Honours, (the title of the Diploma Project: "Linear Connections on Vector Bundles", mark 10);
 - awarded at the National Contest of Scientific and Technical Creation for Students (1982).
 - specialized during 1982-1983 at the Faculty of Mathematics in the fields Algebra and Geometry; B.Sc. Specialization Thesis "Elements of Twistor Theory"; scientific advisor: Prof.Dr. K.Teleman (mark 10).
- 2.** During **1983 – 1990**, employee of the Institute of Computer Technique and Informatics (I.T.C.I.) - Bucharest, scientific researcher.
- 1987 - specialized in Computer Aided Design and Engineering (exam average mark: 10)
 - took part at the Scientific Sessions of the Faculty of Mathematics (University of Bucharest) and, each year, at the National Conferences of Geometry and Topology; presented research reports at the Scientific Seminar of Geometry "Gh. Vrăncianu" of the Department of Geometry, at the Faculty of Mathematics;
- 3.** Starting with 1990, member of the Department Mathematics-Informatics, University Politehnica of Bucharest; Full Professor since 2003.
- 1992 - obtained the Ph.D. degree in Mathematics, Scientific Advisor Acad.Prof.Dr.Doc. Radu Miron from Faculty of Mathematics, University "A.I.Cuza" of Iassy, the title of the Ph.D. thesis being "Gauge Finslerian Theories and Applications in the Study of Physical Fields".
 - teaching load: lectures of computer graphics and fuzzy systems algebra and geometry with specialized software at the sections of Master Studies of Department of Mathematics-Informatics at University Politehnica of Bucharest and regular lectures of algebra & analytic and differential geometry; linear algebra, analytic and differential geometry, and seminars of linear algebra, analytic geometry, differential geometry, differential equations, equations of mathematical physics, and mathematical analysis, at the University Politehnica of Bucharest.
 - affiliate member of the Faculty of Engineering in Foreign Languages (University Politehnica of Bucharest): taught lessons of Linear Algebra and Analysis and Differential Geometry (in English 1992-present).
 - affiliate Professor of the Faculty of Mathematics of the University of Bucharest - taught lectures of Differential Geometry, Lie Groups, Riemannian Geometry, Complex Manifolds and Differential Geometry (in English, 1993-1996), and seminars on Differential, Analytic, Affine and Projective Geometry and Lie Groups (1986-1996).
 - visiting professor at the University of Athens, Greece - lectures on Finsler spaces and their generalizations, at the Universities of Athens and Patras (May 1997).
 - postdoctoral Fulbright Scholarship at Kansas University of Lawrence, KS, USA; specialized in the theory of loop groups (August 1997-May 1998).
 - member of Socrates mobility Programme U.P.B.-Bucharest / Univ.of Thessaloniki-Greece lectures of Differential Geometry at Aristotle University of Thessaloniki, (June 2002)
 - lecturer at the Indian Statistical Institute, Indian Society of Mathematics and at Asian Society of Calcutta - India (December 2005)
 - lecturer at the University of Tartu and CENS (Institute of Cybernetics of Tallinn) - February 2007
 - visiting professor at University of Messina and Accademia Pelloritana dei Pericolanti - Messina - Italy - 2009;
 - presented invited lectures at International Conferences at Debrecen - Hungary; Thessaloniki and Athens-Greece; Cairo-Egypt, Novi Sad and Zrenjanin - Yugoslavia, Ohrid - Macedonia; Moscow - Russia; Tianjin - China; Manhattan and Lubbock - USA; Odessa - Ukraine; Kloster-Benediktbeuern - Germany; Sofia and Varna - Bulgaria; Bucharest, Cluj, Iasi, Deva, Mangalia, Timisoara, Constantza and Brasov - Romania.
 - visiting professor at Polytechnic University of Hong Kong (2010).
 - visiting professor at Ondokuz Mayıs University of Samsun, Turkey (2011).
 - Erasmus visiting professor at Institute of Pure Mathematics of Tartu, Estonia (2011).

In Romania, the mark-scale in the educational system is 1-10, (10=A).

Director of Research Grants:

- director of the Inter-Academic Romanian-Belarussian contract (Acad. of Sci. Rep. Belarus - Inst.Phys. Minsk 2012-2019);
- director of the Inter-Academic Romanian-Belarussian contract (Acad. of Sci. Rep. Belarus - Univ. Mogilev, 2010-2011);
- director of Inter-Academic Romanian-Russian contracts (Acad. of Sci. Russian Fed. - Int. Res. Inst. H.S.G.P. 2008-2009);
- director of two CNCSIS Romanian grants in Differential Geometry (2000-2003, 2003-2006);
- director for the Romanian part - contract with Mathematical Institute of Skopje-Macedonia (1997-2000 and 2000-2003);
- Software supervisor - contract of technical assistance ITCI - "NARVA Enterprises" Berlin-Germany - 1989;
- Software supervisor - International Agreement ITCI - Academy of Sciences of Moscow (I.P.I.A.N.) - Russia - 1988-1989.

Member of Research Grants:

- currently member in three POSDRU Grants regarding Mathematics in Academic Education and Master studies of image processing applied in biology;
- "The 15-th Italian-Romanian Executive Programme of S&T Co-operation" (2006-2008): "Economic Geometric Dynamics", (Messina University, Italy - University Politehnica of Bucharest, Romania) - director Constantin Udriște;
- 7 grants in differential geometry applied in electromagnetic field theory - director Constantin Udriște (1993-2007);
- Eupean project of doctoral achievement FP6/HRM/EST3 (2005-2007) - director Daniel Ioan;
- COPERNICUS CIPA-CT 94-0175 (1995-1998) (applications of envelope theory to mechanics, director George Dobre).

* Published more than 100 scientific papers in international journals; partial list of journals:

- Linear Algebra and Analysis (USA);
- International Journal of Theoretical Physics (USA);
- Tohoku Mathematical Journal, Journal of Mathematical Society of Japan and Tensor N.S. (Japan)
- Algebras, Groups and Geometries and IJMMS (USA)
- Publicationes Mathematicae (Debrecen, Hungary)
- Reports on Mathematical Physics (RoMP; Torun, Poland)
- Matematički Bilten (Macedonia FYROM)
- Novi Sad Journal of Mathematics (Serbia),
- Proceedings volumes edited by Kluwer Academic Publishers and AIP,
- Mathematical Reports, Ann. Univ Iasi and Ann. Univ. Bucharest (Romania)
- Balkan Journal of Geometry and Its Applications (Bucharest, Romania)
- Bulletin de la Societe Mathematique de Roumanie (Bucharest, Romania)
- Scientific Bulletin of the University Politehnica of Bucharest, etc.

* Published 10 books in Differential Geometry (US - 1, Greece - 2, Russian Federation - 2); editor of 9 Proceedings volumes of international conferences.

* Co-organizer of 10 international conferences in Romania, Russian Federation, Egypt.

* Experience in computer software:

- Programming Languages: C++, C, Fortran, Basic, Assembler;
- Text Editors: LaTeX and TeX, SciWord, Word;
- Software Packages: Maple, Matlab, Mathematica;
- Operating Systems: Windows, MS-DOS, Linux.

* Prizes and awards:

- included in the "Enciclopedia of Romanian Personalities";
- included in Who's Who, Verlag fur Personenzyklopädien A.G., Switzerland, 2006-2008, 2010;

included in the ABI volumes "Who's Who in the World" - ABI - 1999-2002, member RBA-ABI (2001-2002) and (IBC) IDDL 1999-2002.

recipient of the following prizes:

- Internațional Anassilaos - Renato Calapso prize (Reggio Calabria - Italy, 2007).
 - CNCSIS 2010 - Bucharest, Romania, for the ISI article: "Geometrical extension of the KCC-invariants" (authors: V. Balan & M. Neagu), Balkan Journal of Geometry and its Applications, v. 15, n.1, pp. 8-16, 2010
- * Science - Mathematics
- CNCSIS 2010 - Bucharest, Romania, for the ISI article: "Projective shape manifolds and coplanarity of landmark configurations. A nonparametric approach" (authors: V. Balan, M. Crane, V. Patrangenaru, X. Liu), Balkan Journal of Geometry and Its Applications, v. 14, no. 1, 1-10., 2009
- * Science - Mathematics

Beginning with 2006: coordinator in the European Programme Erasmus (UPB) for: Univ. of Tartu - Estonia, Politechnic Univ. Talin - Estonia, Univ. of Kaunas - Lithuania, Univ. of Strasbourg - France, Univ. of Messina - Italy, Univ. of Samsun and Technical University of Istanbul - Turkey.

* Member of the Editorial Board of the scientific journals:

- Bulletin of Calcutta Mathematical Society, Calcutta, India;
- Matematicki Bilten, Skopje, Macedonia;
- International Electronic Journal of Geometry (www.iejgeo.com), Ankara, Turkey;
- Hypercomplex Numbers in Geometry and Physics, Moscow, Russia;
- Proceedings of the International Geometry Centre - Odessa, Ukraine;
- The Journal of Nonlinear Sciences and its Applications (TJNSA), Iran;
- The Journal of Nonlinear Analysis and Its Applications (JNAA), Iran;
- Balkan Journal of Differential Geometry and Its Applications (BJGA, URL <http://www.mathem.pub.ro/bjga> - Romania; managing editor); Applied Sciences (APPS, URL <http://www.mathem.pub.ro/apps> - Romania; managing editor); Differential Geometry - Dynamical Systems (DGDS, URL <http://www.mathem.pub.ro/dgds> - Romania; managing editor). BSG Proceedings (BSGP, URL <http://www.mathem.pub.ro/proc> - Romania; managing editor since 2006).

* Reviewer at:

- Mathematical Reviews - U.S.A.
- Zentralblatt fur Mathematik - Berlin, Germany
- Acta Applicanda Mathematicae - The Netherlands

* Referee at:

- IJMMS (Int. Jour. of Maths. and Math.Sci.), Univ. of Central Florida, USA
- Bulletin of Calcutta Mathematical Society, India
- Bulletin of the Malaysian Mathematical Society, Malaezia
- Iranian Journal of Science and Technology, Iran
- Bulletin of the University Politehnica of Bucharest
- AMUC (Acta Mathematica Universitatis Comenianae), Bratislava, Slovak Republic
- Acta Applicandae Mathematicae, Amsterdam, The Netherlands

* Member as External Examiner in Ph.D. Thesis Commission (differential geometry), at:

- State University of Tiraspol, Republic of Moldova (2017 - opponent);
- University of Novi Sad, Republic of Serbia (2015 - coordinator)
- University "Kirill and Methodij" of Skopje, Macedonia (2001 and 2010);
- Universities of Iasi (2002), Cluj (2003), Bucharest (2009, 2011), Timisoara (2009, 2011), Brasov (2011);
- Universities of Calcutta, Kalyani and Burdwan, Indian Statistical Institute - India (2007-2011 - 7 commissions);
- University of Nairobi - Kenya (2010);
- University of Cairo - Egypt (2010 - 2 commissions);
- University of Tartu - Estonia (2012).

* Member of the following professional societies

- The American Mathematical Society (member since 1996, webpage <http://www.ams.org>)
- Tensor Society - Japan (since 1992, webpage <http://jpgsonline.com/JDPAZ/JDPApro0/TEX74695.htm>)
- The European Mathematical Society (since 1997, webpage <http://www.emis.de>)
- The Balkan Society of Geometers (founding member - since 1994, vice-president of the Society; webpage <http://www.mathem.pub.ro/dept/bsg.htm>)

* Contributions to Mathematics:

- developed extensions of the gauge Asanov generalized theory to Miron distinguished framework;
- studied special curves, geodesics and their deviations in Generalized Lagrange spaces and their multi-time extensions;
- developed models for gravitational wave theory in extended Finslerian framework;
- characterized nonlinear connections in distinguished jet framework;
- provided generalizations of the Birkhoff and Iwasawa of loop group decompositions in the extended DPW (Dorfmeister-Pedit-Wu) framework;
- studied moduli (meromorphic potentials) for harmonic maps within the DPW theory;
- characterized the mean curvature form for special Finsler spaces and determined all the revolution minimal surfaces in Kropina spaces;
- studied the relations between the polyscalar product, Finsler and Generalized Lagrange structures and provided (h, v) models in the extended Berwald-Moor Finslerian framework;
- applied the KCC (Kosambi-Cartan-Chern) theory in models from biology and ecology.

* Fields of interest

- spectral properties of geometric structures based on symmetric tensors;
- variational problems in fiber bundles applied in gravitation and relativity;
- generalized gauge theory and applications in mechanics and mathematical physics;
- the theory of Finsler, Lagrange, Hamilton and Generalized Lagrange Spaces;
- harmonic maps; the theory of loop groups; applications to the theory of surfaces;
- digital image processing by computers - differential geometry techniques.

List of published papers and books

Vladimir BALAN

Faculty of Applied Sciences, University Politehnica of Bucharest

Ph.D. Thesis: "Gauge Finslerian theories and their applications to the study of physical fields",
University "Al.I.Cuza" of Iași, Faculty of Mathematics, 1992.
Scientific supervisor: Acad. Radu Miron.

Papers published in Scientific Journals

1. N. Krylova, Y. Voynova and V. Balan, *Application of geometrical methods to study the systems of differential equations for quantum-mechanical problems*, Journal of Physics: Conference Series 1416 (2019) 012021.
2. V. Balan, H. Grushevskaya, N. Krylova, G. Krylov and I. Lipnevich, *Two-dimensional first-order phase transition as signature change event in contact statistical manifolds with Finsler metric*, APPS 21 (2019), 11-26.
3. N. Krylova, E. Ovsyuk, V. Balan et al., *Geometrization for a quantum-mechanical problem of a vector particle in an external Coulomb field*, Nonlinear Phenomena in Complex Systems, 21, 4 (2018), 309-325.
4. E. Ovsyuk, O. Veko, Y. Voynova, V. Redkov, V. Kisel and V. Balan, *Spin 1/2 particle with two masses in magnetic field*, APPS 20 (2018), 148-166.
5. E. Ovsyuk, Ya. Voynova, V. Kisel, Balan V., and V. Redkov, *Spin 1 particle with anomalous magnetic moment in an external uniform electric field (II)*, Nonlinear Phenomena in Complex Systems, 20, 1 (2018), 1-20.
6. V.V. Kisel, Ya.A. Voynova, E.M. Ovsyuk, Balan V., V. M. Redkov, *Spin 1 particle with anomalous magnetic moment in an external uniform magnetic field (I)*, Nonlinear Phenomena in Complex Systems, 20, 1 (2017), 21-39.
7. Balan V., H. V. Grushevskaya, N. G. Krylova, M. Neagu, *Multiple-relaxation-time Finsler-Lagrange dynamics in a compressed Langmuir monolayer*, Nonlinear Phenomena in Complex Systems, 19, 3 (2016), 223 - 253.
8. E. Ovsyuk, A. Redko, V. Redkov, Balan V., *The Dirac equation in parabolic cylindrical coordinates, possible effects of the spinor structures in quantum physics*, APPS 18 (2016), 84-108.
9. Z.A.H. Hassan, C. Udriste, Balan V., *Geometry of reliability polynomials*, U.P.B. Sci. Bull., Ser. A, 1 (2016), 3-12.
10. Balan V., M. Rahula, N. Voicu, *Iterative calculus on tangent floors*, An. Șt. Univ. Ovidius Constanța, 24 (1) (2016), 121-152.
11. Balan V., J. Stojanov, *Finsler-type estimators for the cancer cell population dynamics*, Publications de l'Institut Mathématique, Publisher: Mathematical Institute of the Serbian Academy of Sciences and Arts, Beograd, 98 (112) (2015), 53-69.
12. Balan V., C. Udriste, I. Tevy, *Sub-Riemannian geometry and optimal control on Lorenz-induced distributions*, U.P.B. Sci. Bull., Series A, 77 (2) (2015), 29-42.
13. Balan V., J. Stojanov, *Applications of the mean curvature flow associated to anisotropic Generalized Lagrange metrics in image processing*, Facta Universitatis, Series: Mathematics and Informatics 30, 2 (2015), 353-359.
14. Balan V., H. Grushevskaya, N. Krylova, *Finsler geometry approach to thermodynamics of first order phase transitions in monolayers*, DGDS 17 (2015), 24-31.
15. Balan V., A. Manukyan, E. Ovsyuk, V. Redkov and O. Veko, *Confluent Heun functions and the Coulomb problem for spin 1/2 particle in Minkowski space*, APPS 17 (2015), 9-23.
16. Balan V., J. Stojanov, *Finslerian-type GAF extensions of the Riemannian framework in digital image processing*, Filomat 9, 3 (2015), 535-543.
17. Z.A.H. Hassan, Balan V., *Reliability extrema of a complex circuit on bi-variate slice classes*, Karbala International Journal of Modern Science, 1 (1), (2015), 18.
18. Balan V., E.M. Ovsyuk, V.M. Redkov, O.V. Veko, *Maxwell electromagnetic equations in the uniform medium. An alternative to the Minkowski Theory of Special Relativity*, Hypercomplex Numbers in Geometry and Physics, Moscow, 1 (21), 11 (2014), 37-65.
19. A.M. Gal'mak, Balan V., G.N. Vorobiev, *On Post-Gluskin-Hosszu Theorem*, APPS 16 (2014), 11-22.
20. Balan V., V. Redkov and A. Oana, *Finsler-type structures and det-based classification of Muller-type submanifolds*, DGDS 16 (2014), 63-84.
21. Balan V., J. Stojanov, *Finsler structures of 4-th root type in cancer cell evolution model*, Bulletin of the Transilvania University of Brașov, Series III: Mathematics, Informatics, Physics 7 (56), 2 (2014), 3-10.
22. Balan V., J. Stojanov, *Anisotropic metric models in the Garner oncologic framework*, ROMAI J. 10, 1 (2014), 1-10.
23. E. Ovsyuk, O. Veko, M. Neagu, Balan V., V. Redkov, *Spinors, matrix structures, and projective geometry in polarization optics*, (presented at the Conference Finsler Extensions of Special Relativity, 26 - 30 August 2013, Debrecen, Hungary), Hypercomplex Numbers in Geometry and Physics, Moscow, 2 (20), 13 (2013), 315-328.

24. E. Ovsiyuk, O. Veko, A. Oana, M. Neagu, *Balan V.*, V. Redkov, *On possible effects of the spinor structures in Quantum Physics* (presented at the Conference Finsler Extensions of Special Relativity, 26 - 30 August 2013, Debrecen, Hungary), *Hypercomplex Numbers in Geometry and Physics*, Moscow, 2 (20), 13 (2013), 290-314.
25. *Balan V.*, H. Grushevskaya, N. Krylova, M. Neagu and A. Oana, *On the Berwald-Lagrange scalar curvature in the structuring process of the LB-monolayer*, *APPS* 15 (2013), 30-42.
26. E. Ovsiyuk, O. Veko, M. Neagu, *Balan V.*, V. Redkov, *Some properties of parameters of Lorentz matrices and transitivity equations in polarization optics*, *Vesnik of Brest University, Series 4 Physics Mathematics*, 1 (2013), 18-29.
27. N. Krylova, A. Oana, *Balan V.*, H.V. Grushevskaya, M. Neagu, A. Oana, *Berwald-Lagrange scalar curvature in the structure process of the LB-monolayer*, *Applied Sciences* 15 (2013), 30-42.
28. *Balan V.*, *Spectral algebra of the Chernov and Bogoslousky Finsler metric tensors*, in "Analysis, Fractal Geometry, Dynamical Systems in Pure and Applied Mathematics II: Fractals in Applied Mathematics" (Eds: D. Carfi, M. Lapidus, E.P.J. Pearse, M. van Frankenhuijsen), *Amer. Math. Soc., Contemporary Mathematics* 601, 2013, 23-30.
29. *Balan V.*, G.Yu.Bogoslousky, S.S.Kokarev, D.G. Pavlov, S.V. Siparov, N.Voicu, *Geometrical models of the locally anisotropic Space-Time*; *Journal of Modern Physics* 3 (2012), 1314-1335.
30. *Balan V.* *Spectral data of Cartan and metric tensors in Berwald-Moor Finsler spaces*, *Rev. Roum. Math. Pures Appl.*, LVII, 1 (2012), 35-42.
31. A. Galmak, G. Vorobiev, *Balan V.*, *On the properties of Cartesian powers of coset groups and polyadic groups of matrices*, *Appl. Sci.* 14 (2012), 60-73.
32. *Balan V.*, *Spectra of multilinear forms associated to notable m-root relativistic models*, online <http://dx.doi.org/10.1016/j.laa.2011.06.033>; *Linear Algebra and Appl. (LAA)*, 436, 1, 1 (2012), 152-162.
33. M. Rahula, *Balan V.*, *Tangent bundles and gauge groups*, *Scientific Notes of the Kazan University*, 153, 3 (2011), 1-15.
34. *Balan V.*, E. Peyghan, A. Tayebi, *Structure of the indicatrix bundle of Finsler-Rizza manifolds*, *Balkan J. Geom. Appl.* 16, 2 (2011), 1-12.
35. *Balan V.*, M. Neagu, *Jet Finslerian geometry of the conformal Minkowski metric*, arXiv:1102.4166v1 [math.DG] 21 Feb 2011.
36. A. Galmak, *Balan V.*, G.N. Vorobiev, I.R. Nicola, *On n-ary operations and their applications*, *Appl. Sci.* 13 (2011), 40-64.
37. K. Trencevski, E. Celakoska, *Balan V.*, *Research of gravitation in flat Minkowski space*, *Int J. Theor. Phys.* 50 (2011), 1-26.
38. *Balan V.*, M. Crasmareanu, *Euclidean geometry of Finsler wavefronts through Gaussian curvature*, *U.P.B. Sci. Bull., Series A*, 72, 2 (2010), 3-12
39. *Balan V.*, M. Neagu, *The 1-jet generalized Lagrange geometry induced by the rheonomic Chernov metric*, *Scientific Bull. Univ. Politehnica of Bucharest, Ser. A*, 72, 3 (2010), 5-16.
40. A. Galmak, G.N. Vorobiev, *Balan V.*, *On n-ary subgroups of a special n-ary group*, *Hypercomplex Numbers in Geometry and Physics*, Moscow-Russia, 2 (14), 7 (2010), 38-46.
41. *Balan V.*, N. Perminov, *Applications of resultants in the spectral m-root framework*, *APPS* 12 (2010), 20-29.
42. *Balan V.*, S. Lebedev, *On the Legendre transform and Hamiltonian formalism in Berwald-Moór geometry*, *DGDS* 12 (2010), 4-11.
43. *Balan V.*, *Numerical multilinear algebra of symmetric m-root structures. Spectral properties and applications*, *Symmetry: Culture and Science, Symmetry Festival 2009, Symmetry in the History of Science, Art and Technology; Part 2; Geometric Approaches to Symmetry*, Budapest, Hungary, 21, 1-3 (2010), 119-131.
44. *Balan V.*, M. Neagu, *Jet geometrical extension of the KCC-invariants*, arXiv:0906.2903v1 [math.DG] 16 Jun 2009, *BJGA* 15, 1 (2010), 8-16.
45. *Balan V.*, M. Crane, V. Patrangenaru and X. Liu, *Projective shape manifolds and coplanarity of landmark configurations. A nonparametric approach*, *Balkan Journal of Geometry and Applications (BJGA)* 14, 1 (2009), 1-10.
46. *Balan V.*, A. Pitea, *Symbolic software for Y-energy extremal Finsler submanifolds*, *DGDS* 11 (2009), 41-53.
47. *Balan V.*, I.R. Nicola, *Berwald-Moor metrics and structural stability of conformally-deformed geodesic SODE*, *APPS* 11 (2009), 19-34.
48. E. Celakoska, K. Trencevski, *Balan V.*, *Application of the Thomas precession to the deformations of a rotating disc*, *Ukrainian Mathematical Bulletin* 6, 4 (2009), 429-435.
49. *Balan V.*, I.R. Nicola, *Versal deformation and static bifurcation diagrams for the cancer cell population model*, *Quarterly of Applied Mathematics*, Brown University, posted online (<http://www.ams.org/distribution/qam/0000-0000/s0033-569x-09-01169-x/home.html>): May 14, 2009, printed 67, 4 (2009), 755-770.
50. *Balan V.*, *Spectral properties and applications of the numerical multilinear algebra of m-root structures*, *Hypercomplex Numbers in Geometry and Physics*, 2 (10), vol. 5 (2008), 101-108.
51. *Balan V.*, *Euler-Lagrange characterization of area-minimizing graphs in Randers spaces with non-constant potential*, *WSEAS Transactions on Mathematics*, 7, 1 (2008), 1-5.
52. *Balan V.*, C.S. Stamin, *State-space exact linearization and stabilization with feedback control in SODE economic models*, *JAMC* 29 (2008), 271-281.
53. *Balan V.*, *CMC and minimal surfaces in Finsler spaces*, *Tensor N.S.* 68 (2007), 23-29.

54. Balan V., Bibic S.-M., *Effects of averaging on SODE models of dynamic cell processes*, Sci. Bull.Univ. Politehnica of Bucharest, Ser. A, 68, 3 (2006), 3-12.
55. Balan V., Brinzei N., Lebedev S.V., *Geodesics, connections and Jacobi fields for Berwald-Moor quartic metrics*, Hypercomplex Numbers in Geometry and Physics, 2(6), 3 (2006), 107-112.
56. Balan V.; *CMC and minimal surfaces in Berwald-Moor spaces*, Hypercomplex Numbers in Geometry and Physics, 2(6), 3 (2006), 113-122.
57. Balan V., Ikeda S., *Structural considerations on the theory of gravitational fields in Finsler spaces II*, Sci. Bull.Univ. Politehnica of Bucharest, Ser. A, 68, 4 (2006), 3-8.
58. Trenčevski K, Celakoska E.G., Balan V., *On a parametrization of the Poincare group*, International Journal of Pure and Applied Mathematics, 30, 1 (2006), 109-117.
59. Balan V., Nicola I.R., *Linear and structural stability of a cell division process model*, IJMMS, 2006 (2006), Article ID 51848, 1-15.
60. Balan V., Olteanu A., Olteanu O., *On Newton's method for convex operators with some applications*, Rev. Roum. Math. Pures. Appl. 51, 3 (2006), 277-290.
61. Balan V., N. Brinzei, *Einstein equations for (h, v) -Berwald-Moor relativistic models*, BJGA 11, 2 (2006), 20-27.
62. G. Atanasiu, Balan V., *The 2-cotangent bundle with the Berwald - Moor's metric*, Hypercomplex Numbers in Geometry and Physics, 2, 4 (2005), 91-106.
63. G. Atanasiu, Balan V. and M. Neagu, *The 4-poliforms of momenta $K(p) = \sqrt[4]{p_1 p_2 p_3 p_4}$ and its applications in the Hamilton geometry*, (in Russian) Hypercomplex Numbers in Geometry and Physics, 2, 4 (2005), 134-139.
64. Balan V., N. Brinzei, *Berwald-Moor type (h, v) -metric physical models*, Hypercomplex Numbers in Geometry and Physics, 2, 4 (2005), 114-122.
65. Balan V., Bibic S.M., *Solutions entailed by symmetries for quadric-derived PDEs*, Sci. Bull.Univ. Politehnica of Bucharest, Ser. A, 67, 1 (2005), 3-14.
66. Balan V., Ikeda S., *Structural considerations on the theory of gravitational fields in Finsler spaces*, Sci. Bull.Univ. Politehnica of Bucharest, Ser. A, 67, 3 (2005), 3-10.
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