Curriculum Vitae (Dan Burghelea)

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1. Education (degrees)
   - University Degree in mathematics - University of Bucharest, 1965
   - Ph.D. in mathematics- Mathematical Institute of the Romanian Academy, 1968
   - Doctor Docent in Sciences - University of Bucharest, 1972
2. Honorary degree
   - Doctor Honoris Causa - University of Timisoara - Romania (1996)
3. Prizes
   - Prize S.Stoilow of the Romanian Academy, 1967
4. Distinctions
   - Medal: Faithful Service Medal rank (Comandor) from the Romanian Government 2003.
   - Honorary member of the Mathematical Institute of the Romanian academy, 2005
   - Distictinction *Academic Merit* - Romanian Academy of Sciences, 2009
5. Positions held
   - The Ohio State University, Professor 1979-2015, Professor Emeritus 2015-present
   - National Inst. for Sci. and Tech. Creation, Senior Researcher, 1977-1979
   - Institute for Atomic Physics (Bucharest), Senior Researcher, 1975-1977
   - Mathematical Institute of the Romanian Academy, Junior Researcher (1966-68), Researcher (1968-70), Senior Researcher (1970-75)
6. Visiting Positions held
   - Inst. for Advanced Study (1969, short term 1978)
   - Rutgers University, 1978-79
   - University of Geneva, 1970
   - University of Bonn, 1972

- University of Chicago (1974, 1979)
- University of Paris 1974, (short term, 1991)
- ETH, Zurich (1985, 1986, 1992-3)
- ETH, Lausanne 2013
- IHES, Bures sur Yvette, 1987 (short term 1986, 1996, 2005
- ESI for Math. Phys. Vienna (short term 1993, 1995, 2000, 2003)
- Max Plank Institute, Bonn, Germany (short term 1986, 1996, 2005, 2013, 2015)

7. Ph.D.-students and their dissertations
   - John Oprea, Contributions to rational homotopy theory
   - Shoba Char, Contribution to the study of continuos functors
   - Doobon Lee, Contributions to rational homotopy theory of S^1-spaces
   - P. Manoharan, A study of Fréchet manifolds
   - Hua Chen, The localization theorems of S^3-equivariant cohomologies
   - Hon Kit Wai, Witten deformation in the presence of S^1 symmetry
   - Yoonweon Lee, Determinants of elliptic operators
   - John Marcsick, Analytic torsion and closed one forms
   - Imre Major, On equivariant Morse Theory (G-manifolds, prestratifications, conic stratification)
   - Bogdan Bucichovski, Contributions to the complex powers and the zeta function of elliptic pseudodifferential operators on orbifolds
   - Dong Du, Contributions to persistence theory

8. Editorial Boards:

. Studii si cercetari matematice, Academia R. S. Romania: 1972-1978.

. Revue Roumaine des Mathematiques pures et appliquees, Academie de R. S. Roumanie, 1972-1978.

. Annalele Univ. din Timisoara 1994-.

. Bulletin de la Societe Roumaine de mathematiques, 2004-

. Tbilisi Mathematical Journal, 2007-

. Journal of Advanced Research in Differential Equations , 2008-

. Chinese Journal of Mathematics, 2013-

9. Organizer/ member of scientific committee:

- Topology Conference , Bucharest, 1968
- Co-director program in Global Analysis, Banach Institute, Warszawa, 1977
- Oberwolfach- Conference in Algebraic K-Theory of Topological spaces, 1987
- Special AMS session on Cyclic homology, University Park, Pen., 1989
- Miniprogram on Algebraic K-theory , Cyclic Homology and Automorphisms of Manifolds Schrödinger Institute, Vienna, 1994
- OSU Geometry Topology Conferences, since 1989 (every year till 2002)
- Conference on L2-methods in geometry, Sarasota Fl., Jan. 2001
- Special AMS session on L2-methods in Topology, Columbus OH, Sept, 2001
- Conference on C^* algebras and ellipticity, Banach Center, Bedlewo -Poland, 2004, 2006, 2008, 2009
- Conference on Algebras of operators and Topology, Moscow State University, 2005 and 2007
- Conference, Topology old and new (in memory of M.Postnikov), Banach Center Bedlewo-Poland, 2007
- Conerence in geometry and applications, Mulhouse -France September 2012.
- NRW-Topology conference , OSTNABRUECK, April 2013.
- Conference on Experimental and Theoretical methods in Algebra, Geometry and Topology, Romania, Constanzta, June 21-24 2013
- Conference on K-Theory, C*-algebra, Topology of manifolds, Harbin, China August 24-29 2015

10. Publications

PUBLICATIONS

1962

1. On the compactification of topological spaces (in Rumanian) Com. Acad. R. P. Romane, 12, (1962), 667–670.

1963

2. (with N. Popescu), On the singular homology of CW-complexes (in (Romanian) Acad. R. P. Romane Stud. Cerc. Mat. 14, (1963), 115–134.

3. On the exact sequences associated with maps. (in Romanian) Acad. R. P. Romane Stud. Cerc. Mat., 14, (1963), 661–667.

4. Au süjet d'un théoréme relatif aux espaces d'Eilenberg-MacLane. (in French) Rev. Math. Pures Appl. (Bucharest) 8, (1963), 493–496.

5. Sur les applications q-triviales. (in French) Bull. Acad. Polon. Sci. Sér. Sci. Math.

Astronom. Phys., 11, (1963), 727–730.

1964

6. Sur les applications qui induisent des isomorphismes des groupes de Whitehead. (in French) C. R. Acad. Sci. Paris, 259,(1964), 1928–1931.

1965

7. (with A. Deleanu) he spectral sequence of Shih Weishu and the generalized cohomology theories. II. Bull. Math. Soc. Sci. Math. R. S. Roumanie, 9 , (1965), 167–176

1966

8. Principal fiber spaces and Postnikov systems. (in Romanian) Stud. Cerc., Mat. 18, (1966), 585–630.

9. (with A. Deleanu) On certain two-space homology-cohomology groups. Rev. Roumaine Math. Pures Appl., 11, (1966) 703–712.

10. (with A. Deleanu) The spectral sequence of Shih Weishu and the generalized cohomology theories. I. Rev. Roumaine Math. Pures Appl., 11, (1966) 559–571.

11. Sur les groupes de Whitehead. (in French) Bull. Acad. Polon. Sci. Sér. Sci. Math. Astronom. Phys., 14, (1966), 305–307.

12. (with A. Deleanu) La catégorie homotopique des spectres I. (in French) C. R. Acad. Sci. Paris Sér. A-B 262, (1966), A859–A861..

13. (with A. Deleanu) La catégorie homotopique des spectres II. (in French) C. R. Acad. Sci. Paris Sér. A-B, 262 (1966), A901–A903.

14. (with A. Deleanu) La catégorie homotopique des spectres III. (in French) C. R. Acad. Sci. Paris Sér. A-B, 262, (1966), A946–A947.

15. (with A. Deleanu) Une suite spectrale et l'homomorphisme de Hurewicz pour les spectres semi-simpliciaux. (in French) C. R. Acad. Sci. Paris Sér. A-B, 262 (1966), A1393–A1395.

16. (with A. Deleanu) Résolutions de Cartan-Serre et de Postnikov dans la catégorie homotopique des spectres. (in French) C. R. Acad. Sci. Paris Sér. A-B, 263 (1966), A361–A364.

1967

17. (with A. Deleanu) The homotopy category of spectra. I. Illinois J. Math., 11, (1967), 454–473.

1968

18. Note sur les applications qui induisent pour l'homotopie l'homomorphisme "zéro". (in French) Rev. Roumaine Math. Pures Appl., 13, (1968), 151–157.

19. Sur le nombre des composantes connexes des groupes de difféomorphismes. (French) C. R. Acad. Sci. Paris Sér. A-B, 266, (1968), A196–A198.

20. (with A. Deleanu) The homotopy category of spectra. II. Math. Ann., 178, (1968), 131–144.

21. Some properties of homotopy classes of maps of Kan spectra. Invent. Math., 5, (1968), 1–7.

22. H-cobordism for Hilbert Manifolds, preprint E.T.H., Zürich, 1968.

23. Some Applications of Browder-Levine Theorem, preprint E.T.H., Zürich, 1968.

1969

24. (with A. Deleanu) he homotopy category of spectra. III. Math. Z., 108 (1969), 154–170.

25. (with N. Kuiper) Hilbert manifolds. Ann. of Math., 90, (1969), 379–417.

1970

26. Embedding Hilbert manifolds with given normal bundle. Math. Ann., 187, (1970), 207–219.

27. Diffeomorphisms for Hilbert manifolds and handle decomposition. Bull. Amer. Math. Soc., 76, (1970), 352–357.

28. (with D. Henderson) Smoothing and homeomorphisms for Hilbert manifolds. Bull. Amer. Math. Soc., 76, (1970), 1261–1265.

29. (with P. Antonelli and P. Kahn) Gromoll groups, DiffS^n and bilinear constructions of exotic spheres. Bull. Amer. Math. Soc., 76, (1970), 772–777.

30. (with P. Antonelli and P. Kahn) The non finite type of some $\mathrm{Diff}_0 M^n$. Bull. Amer. Math. Soc., 76, (1970), 1246–1250.

1971

31. (with P. Antonelli and P. Kahn) Concordance-homotopy groups and the non infinite type of some D$iff_0\, M^n$. Bull. Amer. Math. Soc., 77, (1971), 719–724.

32. (with A. Duma) Structures analytiques complexes sur les variétés hilbertiennes. (French) 1971 Espaces Analytiques (Séminaire, Bucharest, 1969) pp. 145–148, Editura Acad. R.S.R., Bucharest

32. (with A. Duma)Complex analytic structures on Hilbert manifolds, J. Diff. Geom,, Vol 22, (1985), 243-53

1972

33. Differentiable knots in Hilbert space and a conjecture of R. D. Anderson. Rev. Roumaine Math. Pures Appl., 17, (1972), 341–352.

34. (with P. Antonelli and P. Kahn) The non-finite homotopy type of some diffeomorphism groups. Topology, 11, (1972), 1–49.

35. Free differentiable S^1 and S^3 actions on homotopy spheres. Ann. Sci. École Norm. Sup., 5, (1972), 183–215.

36. (with A. Verona) Local homological properties of analytic sets. Manuscripta Math., 7, (1972), 55–66.

1973

37. On the homotopy type of diff(M^n) and connected problems. Colloque International sur l'Analyse et la Topologie Différentielle (Colloq. Internat. CNRS, No. 210, Strasbourg, 1972). Ann. Inst. Fourier (Grenoble), 23, (1973), no. 2, 3–17.

1974

38. (with R. Lashof) The homotopy type of the space of diffeomorphisms. I. Trans. Amer. Math. Soc., 196, (1974), 1–36

39. (with R. Lashof) The homotopy type of the space of diffeomorphisms. II. Trans. Amer. Math. Soc., 196, (1974), 37–50.

1975

40. (with R. Schultz), On the semisimple degree of symmetry. Bull. Soc. Math. France, 103, (1975), no. 4, 433–440.

1977

41. The structure of block-automorphisms of $M \times S^1$. Topology 16 (1977), no. 1, 65–78.

42.(with R. Lashof) Stability of concordances and the suspension homomorphism. Ann. of Math. (2) 105 (1977), no. 3, 449–472.

43. On the decomposition of the automorphisms-group of $M \times S^1$. Rev. Roumaine Math. Pures Appl. 22 (1977), no. 1, 17–30.

1978

44. Automorphisms of manifolds. Algebraic and geometric topology (Proc. Sympos. Pure Math., Stanford Univ., Stanford, Calif., 1976), Part 1, pp. 347–371, Proc. Sympos. Pure Math., XXXII, Amer. Math. Soc., Providence, R.I., 1978.

1979

45. Some rational computations of the Waldhausen algebraic K-theory. Comment. Math. Helv. 54 (1979), no. 2, 185–198.

46. The rational homotopy groups of Diff (M) and Homeo (M^n) in the stability range. Algebraic topology, Aarhus 1978 (Proc. Sympos., Univ. Aarhus, Aarhus, 1978), pp. 604–

626, Lecture Notes in Math., 763, Springer, Berlin, 1979.

1981

47. (with A. Assadi) Examples of asymmetric differentiable manifolds. Math. Ann. 255 (1981), no. 3, 423–430.

1982

48. (with R. Lashof) Geometric transfer and the homotopy type of the automorphism groups of a manifold. Trans. Amer. Math. Soc. 269 (1982), no. 1, 1–38.

1983

49. Converting compact ANR fibrations into locally trivial bundles with compact manifolds as fibers. Compositio Math. 49 (1983), no. 1, 95–107.

50. (with A. Assadi) Symmetry of manifolds and their lower homotopy groups. Bull. Soc. Math. France 111 (1983), no. 2, 97–108.

51. (with A. Assadi) The non triviality of the first rational homology group of some connected invariant subsets of periodic transformations. Proc. Amer. Math. Soc. 88 (1983), no. 4, 701–707.

Errata to: "The non triviality of the first rational homology group of some connected invariant subsets of periodic transformations" [Proc. Amer. Math. Soc. 88 (1983), no. 4, 701– 707; MR 84j:57030]. Proc. Amer. Math. Soc. 94 (1985), no. 1, 187.

1984

52. (with Z. Friedorowicz) Hermitian algebraic K-theory of topological spaces. Algebraic K-theory, number theory, geometry and analysis (Bielefeld, 1982), 32–46, Lecture Notes in Math., 1046, Springer, Berlin-New York, 1984.

53. Rational homotopy theory, group actions and algebraic K-theory of topological spaces. Algebraic homotopy and local algebra (Luminy, 1982), 60–86, Astrisque, 113-114, Soc. Math. France, Paris, 1984.

1985

54. The cyclic homology of the group rings. Comment. Math. Helv. 60 (1985), no. 3, 354–365.

55. (with M. Vigue Poirrier) A model for cyclic homology and algebraic K-theory of 1-connected topological spaces. J. Differential Geom. 22 (1985), no. 2, 243– 253.

56. (with Z. Friedorowicz) Hermitian algebraic K-theory of simplicial rings and topological spaces. J. Math. Pures Appl. (9) 64 (1985), no. 2, 175–235.

1986

57. Cyclic homology and the algebraic K-theory of spaces. I. Applications of algebraic K-theory to algebraic geometry and number theory, Part I, II (Boulder, Colo., 1983), 89–115, Contemp.Math., 55, Amer. Math. Soc., Providence, R.I., 1986.

58.(with Z. Friedorowicz) Cyclic homology and algebraic K-theory of spaces. II. Topology 25 (1986), no. 3, 303–317.

59. (with C. Ogle)The Künneth formula in cyclic homology. Math. Z. 193 (1986), no. 4, 527–536.

1988

60. (with M. Vique Poirner) Cyclic homology of commutative algebras. I. Algebraic topology—rational homotopy (Louvain-la-Neuve, 1986), 51–72, Lecture Notes in Math., 1318, Springer, Berlin-New York, 1988.

61. A localization theorem for functional S^1-spaces. Math. Ann. 282 (1988), no. 3, 513–527.

62. (with T. Kappeler) Multiplicities of the eigenvalues of the discrete Schrödinger equation in any dimension. Proc. Amer. Math. Soc. 102 (1988), no. 2, 255–260.

1989

63. The free loop space. I. Algebraic topology. Algebraic topology (Evanston, IL, 1988), 59–85, Contemp. Math., 96, Amer. Math. Soc., Providence, RI, 1989.

1991

64. (with L. Friedlander and T. Kappeler)On the determinant of elliptic differential and finite difference operators in vector bundles over S^1. Comm. Math. Phys. 138 (1991), no. 1, 1–18.

Erratum: "On the determinant of elliptic differential and finite difference operators in vector bundles over S^1" [Comm. Math. Phys. 138 (1991), no. 1, 1–18, MR 92f:58193]. Comm. Math. Phys. 150 (1992), no. 2, 431.

65. (with Z. Friedorowicz and W.Gajda)Adams operations in Hochschild and cyclic homology of de Rham algebra and free loop spaces. K-Theory 4 (1991), no. 3, 269–287. Erratum: "Adams operations in Hochschild and cyclic homology of de Rham algebra and free loop space". K-Theory 5 (1991), no. 3, 293.

1992

66. (with L. Friedlander and T. Kappeler)Meyer-Vietoris type formula for determinants of elliptic differential operators. J. Funct. Anal. 107 (1992), no. 1, 34–65.

1993

67. (with L. Friedlander and T. Kappeler)Regularized determinants for pseudodifferential operators in vector bundles over S^1. Integral Equations Operator Theory 16 (1993), no.

4, 496–513.

1994

68. (with L. Friedlander and T. Kappeler and P.McDonald) On the functional logdet and related flows on the space of closed embedded curves on S^2. J. Funct. Anal. 120 (1994), no. 2, 440– 466.

69. (with Z. Friedorowicz and W.Gajda) Power maps and epicyclic spaces. J. Pure Appl. Algebra 96 (1994), no. 1, 1–14.

1995

70. (with L. Friedlander and T. Kappeler) On the determinant of elliptic boundary value problems on a line segment. Proc. Amer. Math. Soc. 123 (1995), no. 10, 3027–3038.

1996

71. (with L. Friedlander and T. Kappeler) Asymptotic expansion of the Witten deformation of the analytic torsion. J. Funct. Anal. 137 (1996), no. 2, 320–363.

72. (with L. Friedlander and T. Kappeler and P.McDonald) Analytic and Reidemeister torsion for representations in finite type Hilbert modules. Geom. Funct. Anal. 6 (1996), no. 5, 751–859.

73. Free loop spaces, power maps and K-theory. Algebraic K-theory (Pozna ń, 1995), 35–58, Contemp. Math., 199, Amer. Math. Soc., Providence, RI, 1996.

74. Mathematics seen from inside and from outside (in Rumanian),Analele Universitatii din Timisoara Vol. 34, no 1, 1996, pages 3-22

1998

75. (with L. Friedlander and T. Kappeler) Witten deformation of the analytic torsion and the Reidemeister torsion, Amer. Math. Soc.Transl. (2) Vol 184, 1998, pages 23-39

76. (with C. Constantinescu)Cutting and gluing back along a closed simple curve on a Riemann surface (in Analysis and Topology (pp.191-213) eds. C.Andreian Cazacu, O.Lehto and Th.M.Rassias, 1998 World Scientific Publishing Company

1999

77. Removing Metric anomalies from Ray Singer torsion, Letters in Mathematical Physics 47: 149-158,, 1999, Kluwer academic publishers

78. (with L. Friedlander and T. Kappeler)Relative torsion for homotopy triangulations , Tel Aviv Topology Conference: Rothenberg Festschrift, 37-57, Contemp. Math., 231, Amer. Math. Soc., Providence, RI, 1999.

79. (with L. Friedlander and T. Kappeler) Torsion for manifold with boundary and glueing formulas. Math. Nachr., 208,(1999), 31-91 Preprint IHES

80. Lectures on Witten-Helffer-Sjöstrand theory (Proceedings of the third third international workshop in geometry and applications and the first German-Romanian seminar in Geometry, Sibiu, 1997), Astra Association, 85-99, (preprint Schrdinger Institute, No 572)

2001

81. (with L. Friedlander and T. Kappeler) Relative torsion, Comm. Cont. Math., 3, (2001) 15-85, 2001

82. (with S. Haller) On the topology and analysis of a closed one form.I, (Novikov theory revisited) Monographie d L'Enseignement Mathematique 38 (2001) 133-175

2003

83. (with C. Tomei and N. Saldahna) Results on infinite dimensional topology and applications to the structure of the critical set of Nonlinear Sturm-Liouville Operators. J. Differential Equations 188 (2003) 569-590

2006

84. (with C.Tomei and N.Saldanha): The topology of the monodromy map of the second order ODE Journal-ref: J. Differential Equations 227, 581-597 (2006).

85. (w. Stefan Haller) Euler structures, the variety of representations and the Milnor-Turaev torsion Geom. Topol. 10 pp. 1185-1238

86. (w. Stefan Haller) A Riemmanian invariant, Euler structures and some topological applications. (in Proc. of the conference on C^*-algebras and Elliptic Theory) , Trends in Mathematics, 37-60, Birkhauser-Verlag, Basel.

2007

87. (w. Stefan Haller) Complex valued Ray-Singer torsion, Journal of Functional Analysis, 248 pp. 27-78

2008

88. (w. Stefan Haller) Dynamics, Laplace transform and spectral geometry, Journal of Topology, LMS, vol 1, 2008 pp 115-151

89. (w.Stefan Haller)Torsion, as a function on the space of representations arXiv.org e-Print archive.math.DG 0507587 in C^*-algebras and Elliptic Theory II , Trends in Mathematics, Birkhauser-Verlag, Basel (Ed D.Burghelea, R Melrose, A.Mischenko, E Troytski.) pp. 41-66

2009

90. (w. N Saldanha and C.Tomei) The geometry of the critical set of nonlinear periodic Sturm- Liouville operators , J. Differential Equations 246 (2009), no. 8, 3380 - 3399.

2010

91.Burghelea, Dan; Haller, Stefan Complex valued Ray-Singer torsion II. Math. Nachr.283 (2010), no. 10, 1372 - 1402.

92.Burghelea, Dan Cyclic theory for commutative differential graded algebras and S-cohomology. Quanta of maths, 85 - 105, Clay Math. Proc., 11, Amer. Math. Soc., Providence, RI, 2010,

93.D. Burghelea, L.Friedlander, Th Kappeler, On the Space of Trajectories of a Generic Vector Field, Analele Universitatii de Vest din Timisoara, seria matematica -informatica, vol.XLVIII, Fasc.1, 2, 2010. pp 45- 126.

94. Dan Burghelea, Dynamics, Spectral Geometry and Topology, In ALEXANDRU MYLLER MATHEMATICAL SEMINAR CENTENNIAL CONFERENCE 2010, Iasi, (Romnia), 21 26 June 2010 (American Institute for Physics(AIP) Conference Proceedings Volume 1329, pp. 35-48 2011

95. Dan Burghelea, Smooth structure on the moduli space of instantons of generic vector field, (to appear in) Exploratory Workshop on "Differential Geometry and its Applications" Iasi, September 2-4, 2009 Cluj University Press, (arXiv:1004.2084)

2013

96. Dan Burghelea, Topology or real angle valued maps and Graph representations in Advances in Mathematics (Invited contributions to the seventh Congress of Romannian mathematicians, Brasov 2011) The publishing house of the Romanian Akademy, 103 -119

97.Dan, Burghelea, Tamal Dey, Topological Persistence for Circle Valued maps , Discrete and Computational Geometry, 2013 Vol 50, pp 69-98

(submitted)

98. Dan Burghelea, Stefan Haller, Topology of angle valued maps, bar codes and Jordan blocks, arXiv:1303.4328 (45 pages)

99.Dan Burghelea, A refinement of Betti numbers and Homology in the presence of a continuous function. I arXiv:1501.01012

100. Dan Burghelea, Linear relations, monodromy and Jordan cells of a circle valued map, arXiv:1501.02486

101. Dan Burghelea, Refinement of Novikov-Betti numbers and Novikov homology provided by an angle valued map (to appear in a volume dedicated to Y Solovyov, Moscow, 2016) arXiv:1509.07734

Posted but not submitted)

102. (w.Stefan Haller) The geometric complex of a Morse-Bott-Smale pair and an extension of a theorem by Bismut-Zhang arXiv.org e-Print archive.math.GT/0409166 [abs, ps, pdf, other] :

103. A short course on Witten Hellfer Sjöstrand theory., arXiv.org e-Print archive math.

DG/0101063

104.(w.Stefan Haller) Non-contractible periodic trajectories of symplectic vector fields, Floer cohomology and symplectic torsion arXiv.org e-Print archive math. SG/0104013

105. Dan Burghelea, Tamal K. Dey, Defining and Computing Topological Persistence for 1-cocycles arXiv:1012.3763

Books

1. (with P. Antonelli and P. Kahn) The concordance-homotopy groups of geometric automorphism groups. Lecture Notes in Mathematics, Vol. 215. Springer-Verlag, Berlin-New York, 1971. x+140 pp.

2. (with T. Hangan, H. Moscovici and A. Verona, in rumanian), Introduction to Differential Topology (in Romanian), Editura Stiintifica, 1972.

3. (with R. Lashof and M. Rothenberg) Groups of automorphisms of manifolds, Lecture Notes in Mathematics, Vol. 473. Springer-Verlag, Berlin-New York, 1975. vii+156 pp.

4. (with A. Albu and T. Ratiu) Differentiable actions of compact Lie groups (in Rumanian) Mathematical Monographs, No. 5 Facultatea de Ştiinţe ale Naturii, Universitatea din Timişoara, Timişoara, 1975. viii+149 pp.

5. Qualitative differential analysis for catastrophe-theory (in Romanian) Monographs, No. 7, Univ. Timisoara, 1977.

Coeditor

1. (w. R Melrose, A.Mischenko, E. Troisky) C* algebras and Elliptic theory (book) published by Birkhauser 2009