PBLICATIONS

Part I of this document (Selected Works) lists the most relevant papers of D. Burghelea by topics.
Part II of this document lists all publications by year.

PART I (Selected Works)

T1 - Homotopy theory of (semisimplicial) spectra

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

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

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

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

T2 - Infinite dimensional topology (Hilbert manifolds)

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

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

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

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

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

• Results on infinite dimensional topology and applications to the structure of the critical set of Nonlinear Sturm-Liouville Operators (with C.Tomei and N.Saldahna), Journal of Diff. Equations, Academic Press, 188 (2003), 569-590.

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

T3 - Complex analytic function theory

• Complex analytic structures on Hilbert manifolds (with A.Duma), J. of Differential Geometry, Tom 5, 1971, 371-385.

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

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

T4 - Automorphisms of manifolds (diffeomorphisms, homeomorphisms) of compact manifolds

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

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

• **book** The concordance-homotopy groups of geometric automorphism groups (with P. Antonelli and P. Kahn), Lecture Notes in Mathematics, Vol. 215, Springer-Verlag, Berlin-New York, 1971.

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

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

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

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

• **book** Groups of automorphisms of manifolds, Lecture Notes in Mathematics (with R. Lashof and M. Rothenberg), Vol. 473, Springer- Verlag,Berlin-New York, 1975.

• The rational homotopy groups of Diff (M) and Homeo (M^n) in the stability range. Algebraic topology, Aarhus 1978, Lecture Notes in Math., 763, Springer- Verlag, Berlin-New York, 1979. pp. 604–626.

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

T5 - Algebraic K-theory of spaces, cyclic homology, algebraic topology of the free loop spaces

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

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

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

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

• K-theory of 1-connected topological spaces (with M. Vigue Poirrier), J. Differential Geom., 22, 1985, no. 2, 243–253.

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

• Adams operations in Hochschild and cyclic homology of de Rham algebra and free loop spaces (with Z. Fiedorowicz and W.Gajda), 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.

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

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

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

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

• 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.

T6 - Differentiable transformation groups

• Free differentiable S^1 and S^3 actions on homotopy spheres, Ann. Sci. Ecole Norm. Sup., 45, 1972, 183–215.

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

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

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

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

T7 - Elliptic operators and regularized determinants

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

• Regularized determinants for pseudo differential operators in vector bundles over S^1 (with L. Friedlander and T. Kappeler), Integral Equations Operator Theory, 16, 1993, no. 4, 496–513.

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

• For determinants of elliptic differential operators (with L. Friedlander and T. Kappeler), J. Funct. Anal. 107, 1992, no. 1, 34–65.

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

T8 - Spectral geometry and torsion

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

• Analytic and Reidemeister torsion for representations in finite type Hilbert modules (with L. Friedlander and T. Kappeler and P.McDonald), Geom.And Funct. Anal., 6, 1996, 751–859.

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

• Removing Metric anomalies from Ray Singer torsion, Letters in Mathematical Physics 47, 1999, 149-158.

• Relative torsion (with L.Friedlander and T. Kappeler), Communications in Contemporary Mathematics, 3, 2001 No.1, 15-85.

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

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

• A Riemannian invariant, Euler structures and some topological applications (with Stefan Haller), (in Proc. of the conference on C^*-algebras and Elliptic Theory), Trends in Mathematics, 2006, Birkhauser-Verlag, Basel, pp 37-60.

• Complex valued Ray-Singer torsion, Journal of Functional Analysis (with Stefan Haller), 248, 2007, pp. 27-78.

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

• Torsion, as a function on the space of representations (with Stefan Haller), in C^*-algebras and Elliptic Theory II, Trends in Mathematics, Birkhauser-Verlag, Basel, pp 41-66.

• Complex valued Ray-Singer torsion II (with Stefan Haller), Math. Nachr., 283 (2010), no.10, 1372-1402.

• Witten deformation and the spectral package of a Riemanian manifold, Math Reports, Volume 23 (73) 1-2 p 9-30.

T9 - Nonlinear problems and dynamics

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

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

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

• On the Space of Trajectories of a gradient like Vector Field (with L.Friedlander, Th Kappeler), Analele Universitatii de Vest din Timisoara, seria matematica - informatica, vol.XLVIII, Fasc.1, 2, 2010. pp 45-126.

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

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

• 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.

T10 - Computational topology

• Topology of real and angle-valued maps and Graph representations, in Advances in Mathematics, The publishing house of the Romanian Academy, 103 -119. ANANANANANAN

• Topological Persistence for Circle Valued maps (with Tamal Dey), Discrete and Computational Geometry, 2013 Vol 50, pp 69-98.

• New invariants for a real valued and angle valued maps (an alternative to Morse-Novikov theory), Rev. Roumaine Math.Pures Appl. 62(2017), 1, 63-82.

• A refinement of Betti numbers and homology in the presence of a continuous function I, Algebraic and Geometric Topology 17 (2017) 2051-2080.

• A refinement of Betti numbers and homology in the presence of a continuous function II; The case of an angl valued map , Algebraic and Geometric Topology 18 (2018) 3037-87.

• Topology of angle valued maps, bar codes and Jordan blocks (with Stefan Haller), J. Appl. and Comput. Topology (2017) Vol 1, issue 1. 121-197.

book New Topological Invariants for Real- and Angle-valued maps; (An alternative to Morse-Novikov theory, World Scientific Publishing Co. Pte. Ltd, August 2017.

• Alternative to Morse-Novikov theory for closed 1-form I, European Journal of mathematics Voume 6, issue 3, September 2020 pp. 713-750.

T11 - Morse theory, Novikov theory, WHS (Witten Hellfer Sjöstrand) theory

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

• On the Space of Trajectories of a gradient like Vector Field (with L.Friedlander, Th Kappeler), Analele Universitatii de Vest din Timisoara, seria matematica -informatica, vol.XLVIII, Fasc.1, 2, 2010. pp 45-126.

• " Bar codes " for continuous maps and a brief introduction to Alternativ Morse Theory, arXiv:2305.19828 to appear in volume Poenaru 90 published by Springer.

• Witten deformation and the spectral package of a Riemanian manifold, Math Reports, Voume 23 (73) 1-2 p 9-30.

• Topological Persistence for Circle Valued maps (with Tamal Dey), Discrete and Computational Geometry, 2013 Vol 50, pp 69-98.

• **book** New Topological Invariants for Real- and Angle-valued maps; (An alternative to Morse-Novikov theory, World Scientific Publishing Co. Pte. Ltd, August 2017.

• On the topology and analysis of a closed one form.I, (Novikov theory revisited) (with S Haller),

Monographie d LEnseignement Mathematique 38 (2001) 133-175.

• Lectures on Witten Hellfer Sjöstrand theory., arXiv:math/9807008.

• The geometric complex of a Morse-Bott-Smale pair and an extension of a theorem by Bismut-Zhang (with Stefan Haller), arXiv.org e-Print archive.math.GT/0409166 .

• Alternative to Morse-Novikov Theory for a closed 1-form (II), arXiv:2009.05858.

PART II (Complete list of Publications of Dan Burghelea)

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) The 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.

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

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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.

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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.

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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 Diff$_0 M^n$. Bull. Amer. Math. Soc., 76, (1970), 1246–1250.

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31. (with P. Antonelli and P. Kahn) Concordance-homotopy groups and the non infinite type of some $Diff_0\, M^n$. 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.

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

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

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

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

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38. 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.

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

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

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

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

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45. 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.

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

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

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63. (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.

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

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65. (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.

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