CURRICULUM VITAE

FLORIN PANAITE

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Personal Information:

Name: Panaite; First name: Florin

Date and place of birth: 24-10-1970, Bucharest, Romania; Nationality: Romanian

Home address: Str. Împăratul Traian nr. 56, sector 4, Bucureşti, Romania, phone: 0722980023

Professional address: Institute of Mathematics of the Romanian Academy, PO-Box 1-764, RO-014700, Bucharest, Romania

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Academic rank: Scientific Researcher I (CS I), Institute of Mathematics of the Romanian Academy (IMAR)

Languages: Romanian–mother tongue; English–fluent; French–good; Spanish–reading

Educational history:

• High School "Sfantul Sava", Bucharest, 1985-1989

• University Degree in Mathematics, University of Bucharest, 1995

• Master of Science in Algebra, University of Bucharest, 1996

• PhD in Mathematics, University of Bucharest, November 1999, advisor Prof. Dr. Constantin Năstăsescu, with the thesis "Algebras and coalgebras with applications to quantum groups"

Awards: The prize "Gheorghe Lazăr" of the Romanian Academy for 1999 (awarded in 2001), for contributions to the field of Hopf algebras

Research visits abroad:

• 1996: 3 months at University of Antwerp, UIA, Belgium, with a TEMPUS grant

• 1998: 10 months at University of Antwerp, UIA, Belgium, in the framework of the project "Hopf algebras and (co) Galois theory" supported by the Romanian and Flemish governments

• 2001: 1 month at Ecole Polytechnique Federale de Lausanne, Switzerland, supported by the programme SCOPES

• 2003: 2 months at University of Antwerp, Belgium, supported by the programmes EURROM-MAT of IMAR and "Hopf algebras in algebra, topology, geometry and physics" financed by the Flemish and Romanian Ministries of Research

• 2004: 6 months at University of Almeria, Spain, supported by a NATO postdoctoral fellowship offered by the Spanish Ministry of Science and Technology

• 2005-2006: 9 months at University of Antwerp, Belgium, supported by a Marie Curie postdoctoral fellowship within the RTN programme LIEGRITS and by the bilateral project "New techniques in Hopf algebras and graded ring theory" financed by the Romanian and Flemish governments.

• 2006: 4 months at the Centre for Mathematics of the University of Coimbra (CMUC), Portugal, supported by a postdoctoral fellowship offered by CMUC.

• 2007: 2 weeks at University of Granada, Spain, supported by a grant from the Spanish MEC.

• 2007–2008: 12 months at University of Antwerp, Belgium, supported by a postdoctoral fellowship offered by FWO (Flemish Foundation for Scientific Research).

• 2011: 6 weeks at the Centre for Mathematics of the University of Coimbra, Portugal, supported by the CNCSIS project "Hopf algebras, cyclic homology and monoidal categories", contract nr. 560/2009, CNCSIS code ID_69.

• 2012: 1 month at University of Hasselt, Belgium, supported by the CNCS project "Hopf algebras in category theory, representation theory and combinatorics", contract nr. 253/2011, project nr. PN-II-ID-PCE-2011-3-0635.

• 2012: 2 weeks at University of Antwerp, Belgium, supported by the CNCS project "Hopf algebras in category theory, representation theory and combinatorics", contract nr. 253/2011, project nr. PN-II-ID-PCE-2011-3-0635.

• 2012: 1 week at University of Almeria, Spain, supported by the CNCS project "Hopf algebras in category theory, representation theory and combinatorics", contract nr. 253/2011, project nr. PN-II-ID-PCE-2011-3-0635.

• 2013: 1 month at University of Antwerp, Belgium, supported by a grant from FWO (Flemish Foundation for Scientific Research) within the research project "Equivariant Brauer groups and Galois deformations"

• 2013: 1 month at Université de Haute Alsace (UHA), Mulhouse, France, supported by the CNCS project "Hopf algebras in category theory, representation theory and combinatorics", contract nr. 253/2011, project nr. PN-II-ID-PCE-2011-3-0635.

• 2013: 1 week at United Arab Emirates University, Al Ain (UAE), supported by UAEU and by the CNCS project "Hopf algebras in category theory, representation theory and combinatorics", contract nr. 253/2011, project nr. PN-II-ID-PCE-2011-3-0635.

• 2014: 1 month at Université de Haute Alsace (UHA), Mulhouse, France, supported by a grant offered by UHA.

• 2014: 1 month at Erwin Schrodinger Institute, Vienna, Austria, supported by the CNCS project "Hopf algebras in category theory, representation theory and combinatorics", contract nr. 253/2011, project nr. PN-II-ID-PCE-2011-3-0635.

• 2014: 1 month at University of Ferrara, Italy, supported by a grant from Instituto Nazionale di Alta Matematica (INdAM).

• 2014: 1 month at University of Antwerp, Belgium, supported by a grant from FWO (Flemish Foundation for Scientific Research) within the research project "Equivariant Brauer groups and Galois deformations"

• 2015: 1 month at University of Antwerp, Belgium, supported by a grant from FWO (Flemish Foundation for Scientific Research) within the research project "Equivariant Brauer groups and Galois deformations"

• 2015: 10 days at University of Ferrara, Italy, supported by the CNCS project "Hopf algebras in category theory, representation theory and combinatorics", contract nr. 253/2011, project nr. PN-II-ID-PCE-2011-3-0635.

• 2017: 1 month at Université de Haute Alsace (UHA), Mulhouse, France, supported by a grant offered by UHA.

• 2017: 1 month at University of Ferrara, Italy, supported by a grant from Instituto Nazionale di Alta Matematica (INdAM).

• 2018: 1 month at University of Poitiers (France), as Visiting Professor.

Talks at Conferences:

• "Hopf Algebras and Quantum Groups", Brussels (Belgium), June 1998

• "Operator Algebras and Mathematical Physics", Constanţa (Romania), July 2001

• "Hopf Algebras in Noncommutative Geometry and Physics", Brussels (Belgium), May 2002

• "Nonassociative Algebras and Related Topics", Coimbra (Portugal), July 2011

• "Algebra, Geometry, Mathematical Physics VII", Mulhouse (France), October 2011

• "Rings, Categories and Hopf Algebras" (dedicated to the 70^{th} birthday of Prof. Constantin Năstăsescu), Bucharest (Romania), May 2013

• Anniversary Conference: "Faculty of Sciences-150 years", Bucharest (Romania), August 2013

• The Eighth Congress of Romanian Mathematicians, Iasi (Romania), June 2015

• "Ferrara Algebra Workshop. A conference in honour of Prof. Claudia Menini", Ferrara (Italy), September 2015

• "The First Romanian-Turkish Mathematical Colloquium", Constanta (Romania), October 2015

• "Algebra and Group Theory. A conference in honour of Prof. Otto Kegel", Mulhouse (France), October 2015

• "Third Euro-Maghreb Conference in Algebra, Geometry and Lie Theory", Monastir (Tunisia), March 2016

• "Brauer groups, Hopf algebras and monoidal categories. A conference in honour of Prof. Stefaan Caenepeel on the occasion of his 60th birthday", Turin (Italy), May 2016

• "Rencontre Poisson", La Rochelle (France), June 2018

• Anniversary Conference: "IMAR-70 years", Bucharest (Romania), October 2019

Talks at Seminars, Workshops, etc:

• Antwerp Algebra Seminar, University of Antwerp, Belgium, May 1998, May 2006, April 2013

• SANO (Seminario de Algebra No Conmutativa), University of Granada, Spain, April 2004, November 2007

• Workshop "New techniques in Hopf algebras and graded ring theory", Vrije Universiteit Brussels, Belgium, September 2005

• Mini-course (5 hours) "General twisted algebras" during the Socrates Intensive Program "Geometric and Algebraic Methods with Applications in Physics", University of Antwerp, Belgium, September 2007

• Seminar Hopf-Galois, Hasselt University, Belgium, February 2008

• SAAM (Seminario de Algebra y Analysis Matematico), University of Almeria, Spain, November 2012.

• Seminar of the Department of Mathematics, United Arab Emirates University, Al Ain (UAE), November 2013

• Séminaire "Georges Reeb" (Algebre et Geometrie Differentielle), Université de Haute Alsace (UHA), Mulhouse, France, March 2014, June 2017.

• Algebra Seminar, University of Ferrara, Italy, September 2014, September 2017

• Algebra Seminar, University of Padova, Italy, October 2014, October 2017

• Workshop "Hom-Algebras", Monastir, Tunisia, October 2014

Other Conferences, Workshops and Summer Schools attended:

• International Conference on Representation Theory of Groups, Algebras and Orders, Constanţa (Romania), September 1995

• AMS-BeNeLux Congress, Antwerp, May 1996

• Summer School on Representation Theory of Algebras, Finite and Reductive Groups, Cluj-Napoca (Romania), September 1997

• TMR Workshop on Noncommutative Algebra, Antwerp, June 1998

• TMR Workshop on Differential Operators and Quantum Algebras, Reims, November 1998

• Summer School and Workshop on Decomposition Numbers and Character Formulae for Lie Algebras, Algebraic Groups and Quantum Groups, Blaubeuren (Germany), May 1999

• Euroconference and Workshop on Algebra and Representation Theory, Constanţa (Romania), August 2000

• Summer School on Geometry of Quiver Representations and Preprojective Algebras, Isle of Thorns (Sussex, UK), September 2000

• "Interactions between Algebra, Geometry, Topology. A conference in honour of Prof. Vasile Brinzanescu", Bucharest (Romania), May 2015

• "Complex projective geometry. A conference in honour of Prof. Paltin Ionescu", Bucharest (Romania), July 2016

• "Algebra Workshop", in honour of Prof. Mirela Stefanescu on the occasion of her 75^{th} birthday, Bucharest (Romania), December 2016

• "Topology and Geometry: A conference in memory of Ştefan Papadima", Bucharest (Romania), May 2018.

Research fields: Hopf algebras, quantum groups

Research summary:

My field of research is the theory of Hopf algebras and quantum groups, including extensions of these concepts (quasi-Hopf algebras, bialgebroids, quantum groupoids, Hom-bialgebras etc). In my research I have treated various aspects of the theory, such as: quasitriangular structures, ribbon and charmed elements, monoidal, braided and ribbon categories, links with braid groups, Clifford algebras, octonions and Cayley-Dickson algebras, various kinds of crossed products (smash products and biproducts, double crossed products, diagonal crossed products, L-R-smash products, twisted tensor products of algebras, Brzezinski crossed products), twistings of algebras and Rota-Baxter type operators, integrals and Maschke-type theorems, quantum traces and dimensions, actions and coactions, cleft extensions, the study of some classes of pointed Hopf algebras, (anti) Yetter-Drinfeld modules and Hopf (bi) modules, the quantum Yang-Baxter equation and the pentagonal equation, vertex groups, the Drinfeld double and the Heisenberg double, combinatorial and homological aspects, extensions, deformations etc.

PUBLICATIONS

BOOK

D. Bulacu, S. Caenepeel, F. Panaite, F. Van Oystaeyen, **Quasi-Hopf algebras. A Categorical approach.** Encyclopedia of Mathematics and its Applications, 171. *Cambridge University Press, Cambridge*, 2019. xvi+528 pp. ISBN: 978-1-108-42701-2.

ARTICLES

(1) *Ribbon and charmed elements for quasitriangular Hopf algebras*, **Comm. Algebra** 25(3), 973–977 (1997)

(2) *When is the category of comodules a braided tensor category?* **Rev. Roum. Math. Pures Appl.** 42(1-2), 107–119 (1997) (with D. Ştefan)

(3) *An example of quantum commutativity: the generalized Clifford algebra*, **Stud. Cerc. Mat.** 49(3-4), 225–229 (1997)

(4) *Coalgebra deformations of bialgebras by Harrison cocycles*, **Bull. Belg. Math. Soc.** 4(5), 647–671 (1997) (with S. Caenepeel, S. Dăscălescu and G. Militaru)

(5) *A Maschke-type theorem for quasi-Hopf algebras*, in "Rings, Hopf algebras and Brauer groups" (eds. S. Caenepeel and A. Verschoren), 201–207, **Lecture Notes in Pure and Appl. Math.** 197, Marcel Dekker, New York (1998)

(6) *A generalization of the quasi-Hopf algebra $D^{\omega}(G)$*, **Comm. Algebra** 26(12), 4125–4141 (1998) (with D. Bulacu)

(7) *Quasitriangular structures for some pointed Hopf algebras of dimension 2^n*, **Comm. Algebra** 27(10), 4929–4942 (1999) (with F. Van Oystaeyen)

(8) *Quantum traces and quantum dimensions for quasi-Hopf algebras*, **Comm. Algebra** 27(12), 6103–6122 (1999) (with D. Bulacu and F. Van Oystaeyen)

(9) *External homogenization for Hopf algebras. Applications to Maschke's theorem*, **Algebr. Represent. Theory**, 2(3), 211–226 (1999) (with C. Năstăsescu and F. Van Oystaeyen)

(10) *Equivalence of crossed coproducts*, **Bull. Belg. Math. Soc.** 6(2), 259–278 (1999)

(11) *Quasi-Hopf algebra actions and smash products*, **Comm. Algebra** 28(2), 631–651 (2000) (with D. Bulacu and F. Van Oystaeyen)

(12) *Quasi-Hopf algebras and the centre of a tensor category*, in "Hopf algebras and quantum groups" (eds. S. Caenepeel and F. Van Oystaeyen), 221–235, **Lecture Notes in Pure and Appl. Math.** 209, Marcel Dekker, New York (2000) (with F. Van Oystaeyen)

(13) *Existence of integrals for finite dimensional quasi-Hopf algebras*, **Bull. Belg. Math. Soc.** 7(2), 261–264 (2000) (with F. Van Oystaeyen)

(14) *Relating the Connes-Kreimer and Grossman-Larson Hopf algebras built on rooted trees*, **Lett. Math. Phys.** 51(3), 211–219 (2000)

(15) *Clifford-type algebras as cleft extensions for some pointed Hopf algebras*, **Comm. Algebra** 28(2), 585–600 (2000) (with F. Van Oystaeyen)

(16) *Deformation cohomology for Yetter-Drinfel'd modules and Hopf (bi)modules*, **Comm. Algebra** 30(1), 331–345 (2002) (with D. Ştefan)

(17) *Hopf bimodules are modules over a diagonal crossed product algebra*, **Comm. Algebra** 30(8), 4049–4058 (2002)

(18) *Quasi-Hopf algebras and representations of octonions and other quasialgebras*, **J. Math. Phys.** 45(10), 3912–3929 (2004) (with F. Van Oystaeyen)

(19) *More properties of Yetter-Drinfeld modules over quasi-Hopf algebras*, in "Hopf algebras in noncommutative geometry and physics" (eds. S. Caenepeel and F. Van Oystaeyen), 89–112, **Lecture Notes in Pure and Appl. Math.** 239, Marcel Dekker, New York (2005) (with D. Bulacu and S. Caenepeel)

(20) *Yetter-Drinfeld categories for quasi-Hopf algebras*, **Comm. Algebra** 34(1), 1–35 (2006) (with D. Bulacu and S. Caenepeel)

(21) *Generalized diagonal crossed products and smash products for quasi-Hopf algebras. Applications*, **Comm. Math. Phys.** 266(2), 355–399 (2006) (with D. Bulacu and F. Van Oystaeyen)

(22) *Some bialgebroids constructed by Kadison and Connes-Moscovici are isomorphic*, **Appl. Categ. Structures** 14(5-6), 627–632 (2006) (with F. Van Oystaeyen)

(23) *L-R-smash product for (quasi-) Hopf algebras*, **J. Algebra** 309(1), 168–191 (2007) (with F. Van Oystaeyen)

(24) *General twisting of algebras*, **Adv. Math.** 212(1), 315–337 (2007) (with J. Lopez and F. Van Oystaeyen)

(25) *Extending lazy 2-cocycles on Hopf algebras and lifting projective representations afforded by them*, **J. Algebra** 313(2), 695–723 (2007) (with J. Cuadra)

(26) *On some classes of lazy cocycles and categorical structures*, **J. Pure Appl. Algebra** 209(3), 687–701 (2007) (with M. D. Staic and F. Van Oystaeyen)

(27) *A structure theorem for quasi-Hopf comodule algebras*, **Proc. Amer. Math. Soc.** 135(6),

1669–1677 (2007) (with F. Van Oystaeyen)

(28) *Generalized (anti) Yetter-Drinfeld modules as components of a braided T-category*, **Israel J. Math.** 158(1), 349–366 (2007) (with M. D. Staic)

(29) *Doubles of (quasi) Hopf algebras and some examples of quantum groupoids and vertex groups related to them*, in "Hopf algebras and generalizations" (eds. L. H. Kauffman, D. E. Radford and F. J. O. Souza), 91–115, **Contemporary Math.** 441, Amer. Math. Soc. (2007)

(30) *Invariance under twisting*, in "New techniques in Hopf algebras and graded ring theory" (eds. S. Caenepeel and F. Van Oystaeyen), 85–104, Royal Flemish Academy, Belgium (2007) (with P. Jara, J. Lopez and F. Van Oystaeyen)

(31) *On iterated twisted tensor products of algebras*, **Internat. J. Math.** 19(9), 1053-1101 (2008) (with P. Jara, J. Lopez and F. Van Oystaeyen)

(32) *Quasialgebra tensor products and smash products*, in "Lie Theory and its applications in physics VII" (eds. H.-D. Doebner and V. K. Dobrev), 466–469, Heron Press, Sofia (2008) (with H. Albuquerque)

(33) *On quasi-Hopf smash products and twisted tensor products of quasialgebras*, **Algebr. Represent. Theory** 12(2-5), 199–234 (2009) (with H. Albuquerque)

(34) *A quotient of the braid group related to pseudosymmetric braided categories*, **Pacific J. Math.** 244(1), 155–167 (2010) (with M. D. Staic)

(35) *Pseudosymmetric braidings, twines and twisted algebras*, **J. Pure Appl. Algebra** 214(6), 867–884 (2010) (with M. D. Staic and F. Van Oystaeyen)

(36) *L-R-smash biproducts, double biproducts and a braided category of Yetter-Drinfeld-Long bimodules*, **Rocky Mountain J. Math.** 40(6), 2013–2024 (2010) (with F. Van Oystaeyen)

(37) *Alternative twisted tensor products and Cayley algebras*, **Comm. Algebra** 39(2), 686–700 (2011) (with H. Albuquerque)

(38) *Quasi-elementary H-Azumaya algebras arising from generalized (anti) Yetter-Drinfeld modules*, **Appl. Categ. Structures** 19(5), 803–820 (2011) (with F. Van Oystaeyen)

(39) *Invariance under twisting for crossed products*, **Proc. Amer. Math. Soc.** 140(3), 755–763 (2012)

(40) *More examples of invariance under twisting*, **Czechoslovak Math. J.** 62(1), 187–195 (2012)

(41) *Some (Hopf) algebraic properties of circulant matrices*, **Algebra Discrete Math.** 13(1), 1–17 (2012) (with H. Albuquerque)

(42) *More examples of pseudosymmetric braided categories*, **J. Algebra Appl.** 12(4) (2013), 1250186 (21 pages) (with M. D. Staic)

(43) *L-R-smash products and L-R-twisted tensor products of algebras*, **Algebra Colloq.** 21(1), 129–146 (2014) (with M. Ciungu)

(44) *Yetter-Drinfeld modules for Hom-bialgebras*, **J. Math. Phys.** 55, 013501 (2014) (17 pages) (with A. Makhlouf)

(45) *Equivalent crossed products and cross product bialgebras*, **Comm. Algebra** 42(5), 1937–1952 (2014)

(46) *Iterated crossed products*, **J. Algebra Appl.** 13(7) (2014), 1450036 (14 pages)

(47) *BiHom-associative algebras, BiHom-Lie algebras and BiHom-bialgebras*, **SIGMA Symmetry Integrability Geom. Methods Appl.** 11 (2015), 086, 34 pages (with G. Graziani, A. Makhlouf and C. Menini)

(48) *Hom-L-R-smash products, Hom-diagonal crossed products and the Drinfeld double of a Hom-Hopf algebra*, **J. Algebra** 441, 314–343 (2015) (with A. Makhlouf)

(49) *Twisting operators, twisted tensor products and smash products for Hom-associative algebras*, **Glasg. Math. J.** 58(3), 513–538 (2016) (with A. Makhlouf)

(50) *A new way to iterate Brzezinski crossed products*, **Colloq. Math.** 142(1), 51–60 (2016) (with L. Dăuş)

(51) *Structure theorems for bicomodule algebras over quasi-Hopf algebras, weak Hopf algebras and braided Hopf algebras*, **Comm. Algebra** 44(11), 4609–4636 (2016) (with J. Dello, F. Van Oystaeyen and Y. Zhang)

(52) *Twisted algebras and Rota-Baxter type operators*, **J. Algebra Appl.** 16(4) (2017), 1750079 (18 pages) (with F. Van Oystaeyen)

(53) *$\{\sigma,\tau\}$-Rota-Baxter operators, infinitesimal Hom-bialgebras and the associative (Bi)Hom-Yang-Baxter equation*, **Canad. Math. Bull.** 62(2), 355–372 (2019) (with L. Liu, A. Makhlouf and C. Menini)

(54) *Rota-Baxter operators on BiHom-associative algebras and related structures*, **Colloq. Math.** 161(2), 263–294 (2020) (with L. Liu, A. Makhlouf and C. Menini)

(55) *BiHom-pre-Lie algebras, BiHom-Leibniz algebras and Rota-Baxter operators on BiHom-Lie algebras*, to appear in **Georgian Math. J.**, arXiv:math.QA/1706.00474 (with L. Liu, A. Makhlouf and C. Menini)

(56) *Hom-tensor categories and the Hom-Yang-Baxter equation*, **Appl. Categ. Structures** 27(4), 323–363 (2019) (with P. T. Schrader and M. D. Staic)

(57) *Some ribbon elements for the quasi-Hopf algebra $D^{\omega}(H)$*, to appear in **J. Algebra Appl.**, arXiv:math.QA/1812.01111 (with D. Bulacu)

(58) *BiHom-Novikov algebras and infinitesimal BiHom-bialgebras*, **J. Algebra** 560, 1146–1172 (2020) (with L. Liu, A. Makhlouf and C. Menini)

(59) *Polarization and deformations of generalized dendriform algebras*, to appear in **J. Noncommut. Geom.**, arXiv:math.RA/1912.09221 (with C. Ospel and P. Vanhaecke)

(60) *Tensor products and perturbations of BiHom-Novikov-Poisson algebras*, **J. Geom. Phys.** 161, 104026 (2021) (with L. Liu, A. Makhlouf and C. Menini)

(61) *Generalized NS-algebras*, arXiv:math.RA/2103.07530 (with C. Ospel and P. Vanhaecke)