CURRICULUM VITAE

LOUIS FUNAR

Present position and address:
Researcher CNRS,
Institut Fourier BP 74, UFR Mathématiques, University of Grenoble I,
38402 Saint-Martin-d'Hères Cedex, France.
e-mail: funar@fourier.ujf-grenoble.fr

Personal data:
• Date and place of birth: April 19, 1967, Craiova, Romania.
• Nationality: Romanian and French.

Education:
• HDR: University of Grenoble, France, June 2001.
• PhD: University of Paris-Sud, Orsay, France, February 1994.
• MS: University of Bucharest, Romania, June 1990.

Professional history:
• 1998-present: Researcher CR1, CNRS, UMR 5582, Institut Fourier, Grenoble.
• 1999-2000: Visiting Associate Professor, Tokyo Institute of Technology, Tokyo, Japan.
• 1994-1998: Researcher CR2, CNRS, UMR 5582, Institut Fourier, Grenoble.
• 1993-1994: Instructorship (ATER), University Paris-Sud, Orsay.
• 1990-1994: Junior Researcher, Institute of Mathematics of the Romanian Academy, Bucharest, Romania.

Current interest: Geometric Topology, Mathematical Foundations of Quantum Field Theory.

Grants, fellowship and awards:
• 1999-2000: Canon Fellowship for one year.
• 1996-2003: Italian CNR grant GNSAGA (one month support each year).
• 1995: European Fellowship Grant ERBCHGCT920011 (HCM Program).
• 1990-1993: BGF fellowship (French Governement Grant).
• 1985: Second prize International Mathematical Olympiad, Helsinki.
• 1984: First prize International Mathematical Olympiad, Praha. First prize Balkaniad of Mathematics, Athens.
• 1983: Third prize International Mathematical Olympiad, Paris.

PhD Students:
• Paolo Bellingeri (co-directed by Vlad Sergiescu), 2000-2003: *Braids on surfaces and link invariants.*
• Daniele Otera (co-directed by Valentin Poenaru), 2002-2006: *Asymptotic properties of infinite groups: geometric connectivity and simple connectivity at infinity.*
• Maxime Wolff, 2003-2007: *Compactifications of moduli spaces of representations of surface groups into $PSL(2, \mathbb{R})$.*
• Frederic Palesi, 2006-: *Dynamics of the mapping class groups actions.*

Other Professional Activities:
• Co-organizer (with Christine Lescop) of the summer school *Invariants of knots and 3-manifolds*, Institut Fourier, June 21-July 9, 1999.
• Organizer of several mini-conferences *Around the Poincaré Conjecture* 1999, *Groups and geometry* 2001, *Surfaces: geometry and arithmetics* 2002, *Geometry and topology of low dimensional manifolds* 2003, *Journées sur les algèbres de Hecke* 2004, at Institut Fourier.
• Co-organizer (with Vlad Sergiescu) of the summer school *Group theory: from geometric topology to arithmetic,*

Cluj, Romania, August 18-30, 2003.

• Co-organizer of the conference *Braids*, Autrans, June 1-3, 2004.

• Co-organizer of the special session *Geometry and Topology of Groups*, within the Joint Meeting SMF-SMI (Fano Conference), Torino, Italy, June 3, 2006.

Referees:

• David Gabai: Mathematics 253-37, Caltech, Pasadena, CA 91125.

• Sergei Matveev: Dept. Mathematics, Chelyabinsk State Univ, 454136 Chelyabinsk, Russia.

• Valentin Poénaru: Mathématiques, Bat.425, Univ. Orsay, 91405 Orsay.

• Vladimir Turaev: IRMA, Univ.Strasbourg, 7 rue René Descartes, Strasbourg.

• Larry Siebenmann: Mathématiques, Bat.425, Univ. Orsay, 91405 Orsay.

• Pierre Vogel: UFR Mathématiques, Univ.Paris 7, place Jussieu, Paris.

Selected publications:

• *2+1-D TQFT and 2-D RCFT*, Commun.Math.Phys. 171 (1995), 405-458.

• *On the quotients of cubic Hecke algebras*, Comun.Math.Phys. 173(1995), 513-558.

• *Cubulations, mappability, immersions and a problem of Habegger*, Ann.Sci. ENS 32(1999), 681-700.

• (with Rosa Gini) *On the graded cobordism group of immersions*, GAFA 12(2002), 1235-1264.

• (with Siddhartha Gadgil) *On the geometric simple connectivity of open manifolds*, IMRN, no.24, 2004, 1193-1248.

• (with Paolo Bellingeri) *Polynomial invariants of links satisfying cubic skein relations*, Asian J. Math. 8(2004), 475-510.

• (with Ch. Kapoudjian) *On a universal mapping class group of genus zero*, GAFA 14(2004), 965-1012.

• (with Ch Kapoudjian) *The braided Ptolemy-Thompson group is finitely presented*, Geom Topol 12(2008), 475-530.

Book:

• (with Valentin Boju) *the Math Problems Notebook*, 236p., Birkhauser, 2007.

Publications

1983

1. (with V.Boju) *Espaces à courbure Stanilov quasi-constante*, Serdica Bulg.Math.Publ. 9(1983), 307-308.

1987

2. (with V.Boju) *Iterative processes for* $\mathbf{Z}/2\mathbf{Z}$, An.Univ.Craiova 15(1987), 33-38.

1989

3. (with V.Boju) *Courbure et changements conformes de métrique*, Serdica Bulg.Math.Publ. 15(1989), 187-191.

1990

4. *Generalized sum-free sets of integers*, Nieuw Arch.v.Wisk. 8(1990), 49-55.

1991

5. *Homology of* $P(w_0, w_1, w_2)$, An.Univ."A.I.Cuza" Iasi 37(1991), 365-370.

1993

6. *Représentations du groupe symplectique et variétés de dimension 3*, C.R. Acad.Sci.Paris 316(1993),1067-1072.
7. *Quantification des tores et variétés de dimension 3*, C.R.Acad.Sci.Paris 317(1993), 1079-1084.
8. (with V.Boju)*Hadwiger number for plane ovals*, Proc.A.M.S. 319(1993), 357-359.

1994

9. *Théories quantiques topologiques des champs en dimension 3 et théories conformes des champs en dimension 2*, C.R.Acad.Sci.Paris 318(1994), 1021-1026.
10. *The cohomology of weighted complete intersections*, Archiv Math.(Basel) 63(1994),497-499.

1995

11. *Sur un quotient de l'algèbre de Hecke cubique*, C.R.Acad.Sci.Paris 320(1995), 401-404.
12. *Theta functions, root systems and 3-manifold invariants*, J.Geom.Physics 17(1995), 261-283.
13. *2+1-D TQFT and 2-D RCFT*, Commun.Math.Phys. 171 (1995), 405-458.
14. *On the quotients of cubic Hecke algebras*, Commun.Math.Phys. 173(1995), 513-558.

1996

15. (with V.Boju) *A note on the Bonnet-Myers theorem*, Zeit.Analysis Anw. 15(1996), 275-278.

1997

16. *Vassiliev invariants I:Braids and rational homotopy theory*, Revue Roumaine Math.Pures Appl. 42(1997), 245-272.
17. *TQFT and Whitehead's manifold*, J.Knot Theory Ramif. 6(1997), 13-30.
18. *TQFT for general Lie algebras and applications to open 3-manifolds*, J.Math.Sci.Univ.Tokyo 4(1997), 121-181.
19. (with R. Grimaldi) *La topologie à l'infini des variétés à géométrie bornée et croissance linéaire*, J.Math.Pures Appl. 76(1997), 851-858.

1999

20. *On the TQFT representations of the mapping class groups*, Pacific J. Math. 188(1999), 251-274.
21. *Cubulations, mappability, immersions and a problem of Habegger*, Ann.Sci.École Norm.Sup. 32(1999), 681-700.
22. (with R. Gelca) *On the groupoid of transformations of rigid structures on surfaces*, J.Math.Sci.Univ.Tokyo 6(1999), 599-646.
23. *Discrete cocompact solvgroups and Poénaru's condition*, Archiv Math.(Basel) 72(1999), 81-85.
24. *Cubulations mod bubble moves*, Contemporary Math. 233, Proc. Conf. Low Dimensional Topology, Madeira, 1998 (H.Nencka Ed.), 29-43, 1999.

2000

25. *On some abelian invariants for 3-manifolds*, Revue Roumaine Math.Pures Appl. 45(2000), 825-861.
26. (with R.Grimaldi) *On the spectrum obtained from packing balls on Riemann spaces*, Southeast Asian Math. Bulletin 24(2000), 543-552.

2001

27. *Simple homotopy type and open 3-manifolds*, Revue Roumaine Math. Pure Appl. 46(2001), 617-637.
28. (with T.Thickstun) *On open 3-manifolds proper homotopy equivalent to geometrically simply connected polyhedra*, Topology Appl. 109(2001), 191-200.
29. *On proper homotopy type and the simple connectivity at infinity of open 3-manifolds*, Atti Sem. Mat. Fis. Univ.Modena (special issue in the memory of M.Pezzana), Suppl. of 49(2001), 15-29.

30. (with Siddhartha Gadgil) *Topological geodesics and virtual rigidity*, Alg.Geom.Top. 1(2001), 369-380.

2002

31. (with Rosa Gini) *On the graded cobordism group of immersions*, G.A.F.A. 12(2002), 1235-1264.

2003

32. (with Daniele Otera) *On the simple connectivity at infinity of groups*, Archiv Math.(Basel) 81(2003), 360-368.

2004

33. (with Paolo Bellingeri) *Braids on surfaces and finite type invariants*, C.R.Acad.Sci.Paris, 338(2004), 157-162.
34. (with Siddhartha Gadgil) *On the geometric simple connectivity of open manifolds*, I.M.R.N., no.24, 2004, 1193-1248.
35. (with Renata Grimaldi) *The ends of manifolds of bounded geometry, linear growth and finite filling area*, Geometriae Dedicata 104(2004), 139-148.
36. (with Paolo Bellingeri) *Polynomial invariants of links satisfying cubic skein relations*, Asian J. Math. 8(2004), 475-510.
37. (with Dorin Andrica) *On smooth maps with finitely many critical points*, Journal L.M.S. 69(2004), 783-800.
38. (with Christophe Kapoudjian) *On a universal mapping class group in genus zero*, G.A.F.A. 14(2004), 965-1012.

2005

39. *Ptolemy groupoids actions on Teichmüller spaces*, Modern Trends in Geometry and Topology, Proc. 7-th Int.Workshop on Diff.Geometry, Deva, September 6-11, 2005, Romania, (D.Andrica, P.Blaga, S.Moroianu, Eds.), 185-201,Cluj Univ. Press, 2006.

2006

40. (with Dorin Andrica) *Addendum to: "On smooth maps with finitely many critical points"*, Journal L.M.S. 73(2006), 231-236.

2007

41. (with Maxime Wolff) *Non-injective representations of a closed surface group into PSL(2,R)*, Math. Proc. Cambridge Phil. Soc. 142(2007), 289-304.
42. *Braided Houghton groups as mapping class groups*, 7p., Ann. Univ. "A.I.Cuza" Jassy, special issue in the memory of G.Ionesei, 53(2007), 229-240.
43. *Surface quadrangulations mod flips*, Manuscripta Math. 125(2008), 285-307.
44. (with Christophe Kapoudjian) *The braided Ptolemy-Thompson group is finitely presented*, Geometry & Topology 12(2008), 475-530.

Preprints
- (with Christophe Kapoudjian) *An infinite genus mapping class group and stable cohomology*, 13p.,math.GT/0506400.
- (with Christophe Kapoudjian) *The Ptolemy-Thompson group T^* is asyncronously combable*, 43p., math.GT/0602490.
- (with Daniele Otera) *Remarks on the wgsc and qsf tameness conditions for finitely presented groups*, 21p., math.GT/0610936.
- (with Francisco Lasheras and Dusan Repovs) *Non-compact 3-manifolds proper homotopy equivalent to geometrically simply connected polyhedra and proper 3-realizability of groups*, 11p., math.GT/0709.1576.
- (with Vlad Sergiescu) Central extensions of the Ptolemy-Thompson group arising in the quantized Teichmuller theory, 26p., math.GT/0802.2996.
- (with Cornel Pintea and Ping Zhang) Examples of smooth maps with finitely many critical points in dimensions (4,3), (8,5) and (16,9), 7p., math.GT/0803.0665.

Book:
- (with Valentin Boju) *the Math Problems Notebook*, 251p., Birkhauser, 2007.