

## CURRICULUM VITAE

Enrico Maria Vitale

place and date of birth : Ascoli Piceno (Italy) april 10, 1964

marital status : married, may 6, 1989 ; seven children

home address : Rue de Vismes 8, 1348 Louvain-la-Neuve, Belgium

tel.: 0032-10-458334

professional address : Institut de Recherche en Mathématique et Physique

Université catholique de Louvain

ch. du Cyclotron 2, 1348 Louvain-la-Neuve, Belgium

tel.: 0032-10-473188, fax: 0032-10-472530

e.mail: enrico.vitale@uclouvain.be

home page : <http://perso.uclouvain.be/enrico.vitale/>

### Education

Degree in Mathematics: Università degli Studi di Milano, july 11, 1989. Dissertation: "Equazionalità della logica via il calcolo delle relazioni", supervisor Prof. A. Carboni; final grade: 110/110 cum laude.

Master in Mathematics: Université Catholique de Louvain, september 11, 1992. Dissertation : "Some remarks on Morita Theory", supervisor Prof. F. Borceux.

Ph. D. in Mathematics: Université Catholique de Louvain, november 3, 1994. Dissertation: "Left covering functors", supervisor Prof. F. Borceux; final grade: la plus grande distinction avec félicitations du Jury.

### Positions

Researcher at the Université Catholique de Louvain from 6/11/89 to 20/04/90 and from 22/04/91 to 13/09/92.

Assistant from 14/09/1992 to 31/08/1995 at the Université Catholique de Louvain.

Maître de Conférences from 1/09/1995 to 31/08/1997 at the Université du Littoral (Calais-Dunkerque, France).

Chargé de Cours from 1/09/1997 to 30/09/2005 at the Université Catholique de Louvain.

Professor from 1/10/2005 at the Université Catholique de Louvain.

Full professor from 1/10/2010 at the Université Catholique de Louvain.

### Honor

Fonds International Wernaers 2012 for research and dissemination of knowledge (with M. Cherpion).

## **Grants**

1998 : Budget Jeunes Académiques, 300.000 BF  
1998 : FDS, 2.000.000 BF  
2000 : Crédit aux Chercheurs FNRS, 150.000 BF  
2005 : Crédit aux Chercheurs FNRS, 4.500 EUR  
2007 : DGI (M.E.C.). MTM2007-65431. with Antonio Garzón (Granada, Espana)  
2008 : Crédit aux Chercheurs FNRS, 5.000 EUR  
2009 : Fonds de développement pédagogiques UCL, 47.500 EUR.

## **Administration**

Academic responsable for the UCL for the Leonardo project of the European Community "Tutoring in European Universities".

Academic responsable for the UCL for the European Community-Canada agreement "Atlantis: new avenues in the teaching of mathematics".

Academic responsable for the Department of Mathematics of the Erasmus program until 2010.

Dean of the Institut de Mathématique Pure et Appliquée, UCL, from October 2005 to Septembre 2009.

Academic responsable for the UCL for the Diplôme Interuniversitaire d'Etudes Approfondis en Mathématiques from 2005 to 2008.

Dean of the School of Mathematics of UCL from February 2010.

## **Teaching**

Assistant at the Université Catholique de Louvain (UCL): 89/90, 91/92, 92/93, 93/94 and 94/95. Class for undergraduated students in Mathematics, Engeneering, Economics and Pharmacy.

Professor for "Théorie des Nombres et Géométrie Algébrique" (degree in Mathematics, UCL) academic year 1991/92, 45 hours of teaching.

Maître de conférences at the Université du Littoral: 95/96 and 96/97. Class for undergraduated students in Mathematics and Physics, 744 hours of teaching.

Co-director of the Category Theory Seminar at the UCL : 30 hours of seminar per year.

Cours at UCL :

academic year 97/98 :

- course for undergraduated students in Sciences, 45 hours.

academic year 98/99 :

- course for undergraduated students in Sciences, 90 hours.

- course for undergraduates students in Mathematics, 45 hours.

- course for PhD students in Mathematics, 30 hours.

- tutor for a PBL course for undergraduated students in Engineering, 30 hours.  
academic year 99/2000 :

- course for undergraduated students in Sciences, 120 hours.
- course for undergraduates students in Mathematics, 45 hours.
- course for PhD students in Mathematics, 30 hours.
- tutor for a PBL course for undergraduated students in Engineering, 15 hours.

academic year 2000/2001 :

- course for undergraduated students in Sciences, 90 hours.
- course for undergraduates students in Mathematics, 45 hours.
- course for PhD students in Mathematics, 30 hours.
- tutor for a PBL course for undergraduated students in Engineering, 60 hours.
- coordinator of the teaching of mathematics at the Faculty of Engineering for one semester.

academic year 2001/2002 :

- course for undergraduated students in Sciences, 90 hours.
- course for undergraduates students in Mathematics, 45 hours.
- course for PhD students in Mathematics, 30 hours.
- tutor for a PBL course for undergraduated students in Engineering, 30 hours.
- coordinator of the teaching of mathematics at the Faculty of Engineering for one semester.

academic year 2002/2003 :

- course for undergraduated students in Sciences, 90 hours.
- course for undergraduates students in Mathematics, 45 hours.
- course for PhD students in Mathematics, 30 hours.
- course for undergraduates students in Engineering, 20 hours.
- tutor for a PBL course for undergraduated students in Engineering, 60 hours.
- coordinator of the teaching of mathematics at the Faculty of Engineering for one semester.

academic year 2003/2004 :

- course for undergraduated students in Sciences, 90 hours.
- course for undergraduates students in Mathematics, 45 hours.
- course for undergraduates students in Engineering, 24 hours.
- tutor for a PBL course for undergraduated students in Engineering, 52 hours.
- coordinator of the teaching of mathematics at the Faculty of Engineering for one semester.

academic year 2004/2005 :

- course for undergraduated students in Sciences, 90 hours.
- course for undergraduates students in Mathematics, 22,5 hours.
- course for undergraduates students in Engineering, 30 hours.
- tutor for a PBL course for undergraduated students in Engineering, 38 hours.
- coordinator of the teaching of mathematics at the Faculty of Engineering for one semester.

academic year 2005/2006 :

- course for undergraduated students in Sciences, 90 hours.
- course for undergraduates students in Mathematics, 22,5 hours.
- course for undergraduates students in Engineering, 60 hours.
- tutor for a PBL course for undergraduated students in Engineering, 38 hours.
- coordinator of the teaching of mathematics at the Faculty of Engineering for one semester.

academic year 2006/2007 :

- course for undergraduated students in Sciences, 90 hours.
- course for undergraduates students in Mathematics, 22,5 hours.
- course for undergraduates students in Engineering, 30 hours.
- tutor for a PBL course for undergraduated students in Engineering, 38 hours.
- coordinator of the teaching of mathematics at the Faculty of Engineering for one semester.

academic year 2007/2008 :

- course for undergraduated students in Sciences, 90 hours.
- course for undergraduates students in Mathematics, 60 hours.
- course for undergraduates students in Engineering, 30 hours.
- tutor for a PBL course for undergraduated students in Engineering, 38 hours.
- coordinator of the teaching of mathematics at the Faculty of Engineering for one semester.

academic year 2008/2009 :

- course for undergraduates students in Mathematics, 150 hours.
- course for undergraduates students in Engineering, 30 hours.
- tutor for a PBL course for undergraduated students in Engineering, 38 hours.
- coordinator of the teaching of mathematics at the Faculty of Engineering for one semester.

academic year 2009/2010 :

- course for undergraduates students in Mathematics, 137,5 hours.
- course for undergraduates students in Engineering, 30 hours.
- tutor for a PBL course for undergraduated students in Engineering, 38 hours.
- coordinator of the teaching of mathematics at the Faculty of Engineering for one semester.

- academic year 2010/2011 :

- course for undergraduates students in Mathematics, 145 hours.
- course for undergraduates students in Engineering, 30 hours.
- tutor for a PBL course for undergraduated students in Engineering, 38 hours.
- coordinator of the teaching of mathematics at the Faculty of Engineering for one semester.

- academic year 2011/2012 :

- course for undergraduates students in Mathematics, 125 hours.
- course for undergraduates students in Engineering, 30 hours.
- tutor for a PBL course for undergraduated students in Engineering, 38 hours.
- coordinator of the teaching of mathematics at the Faculty of Engineering for a term.

Papers in pedagogy :

- [with E. Aguirre, Ph. Delsarte, F. Dupret, J.-P. Vandeuuren, V. Wertz, P. Wouters]  
An experiment in Problem Based Learning in Mathematics, Proc. of the Conference on Tutoring in European Universities (Leonardo da Vinci Project of the European Commission), Trieste 2000, pp. 199-218.

- [with E. Aguirre, Ph. Delsarte, F. Dupret, J.-P. Vandeuuren, V. Wertz, P. Wouters]  
Problem-based learning for a mathematics course in first year engineering, Proc. Second International Conf. on Problem-based Learning in Higher Education, Linkoping, Sweden, September, 2000, 71.

**PhD Students**

Supervisor for Ph.D. Thesis:

Marino Gran (UCL, 1999) (co-supervisor with F. Borceux),  
Ivan Le Creurer (UCL, 1999) (co-supervisor with F. Borceux),  
Marie-Anne Moens (UCL, 2000) (co-supervisor with F. Borceux),  
Mamuka Jibladze (UCL, 2001),  
C. Centazzo (UCL, 2004),  
M. Dupont (UCL, 2008),  
G. Metere (University of Milan, 2008) (co-supervisor with S. Kasangian),  
B. Long Dang Van (UCL, in progress).  
O. Abbad (in progress).  
C. Drugmand (UCL, in progress).

Participation at Ph.D. commission:

F. Van der Plancke (UCL, 1997),  
P. Chuard-Koulmann (Besançon, France, 1997),  
L. Nison (Valenciennes, France, 1998),  
I. Dejaiffe (UCL, 1999),  
S. Ferneeuw (UCL, 1999),  
C. Popescu (UCL, 2000),  
M. El Omary (UCL, 2000),  
A. Deligiannis (UCL, 2000),  
P.-E. Parent (UCL, 2000),  
A. Ouadghiri (UCL, 2001),  
I. Stubbe (UCL, 2003),  
A. del Rio Cabeza (Granada, Spain, 2004),  
D. Ferreira Rodelo (Coimbra, Portugal, 2005),  
P. Roisin (UCL, 2006),  
K. Mounirh (UCL, 2007),  
G. Trentinaglia (Padova, Italie, 2007),  
M. Raczek (UCL, 2007),  
J. Federinov (UCL, 2008),  
N. Martins-Ferreira (Cape Town, 2008),  
G. Debongnie (UCL, 2008),  
D. Servais (UCL, in progress),  
M. Duckerts (UCL, in progress),  
H. Cordova-Bulens (UCL, in progress),  
I. O. Ngaha (UCL, in progress),  
J. V. Even (UCL, in progress).

**Travels and Invitations**

1995 : University of Genova (Italy), one week

1996 : University of Louvain-la-Neuve (Belgium), one week

1998 : University of Sydney (Australia), two months

1999 : University of Bremen (Germany), conference  
University of Coimbra (Portugal), one week

University of Trieste (Italy), two weeks  
Charles University - Prague (Tcheque Republic), conference  
Masaryck University - Brno (Tcheque Republic), two weeks

2000 : University of Genova (Italy), one week  
University of Bremen (Germany), one week  
University of Toronto (Canada), one week

2001 : University of Granada (Spain), two weeks

2002 : University of Granada (Spain), one week  
Fields Institute - Toronto (Canada), one week

2003 : Vrije Universiteit Brussel (Belgium), conference  
University of Valenciennes (France), conference

2004 : University of Granada (Spain), two weeks

2005 : University of Braunschweig (Germany), conference  
University of Bremen (Germany), conference  
University of Milan (Italy), one month  
University of Santiago de Compostela (Spain), one week

2006 : University of Halifax (Canada), one week  
Uniuersity of Milan (Italy), two weeks

2007 : University of Split (Croatia), one week  
University of Coimbra (Portugal), one week

2008 : University of Cape Town (South Africa), one week  
University of Milan (Italy), one week  
University of Barcelona (Spain), one week  
University of Vigo (Spain), one week

2009 : University of Cape Town (South Africa), one week  
University of Milan (Italy), one week

2010 : University of Milan (Italy), two weeks

2011 : University of Milan (Italy), one week  
University of Granada (Spain), one week

2012 : University of Bucarest (Romania), one week.

### **Scientific Activities**

Co-organisation of the "61st Peripatetic Seminar on Sheaves and Logic" (Dunkerque - France, 8-9/06/1996).

Co-organisation of the "71st Peripatetic Seminar on Sheaves and Logic" (Louvain-la-Neuve - Belgium, 16-17/10/1999).

Co-organisation of the Contactforum of the Royal Flemish Academy of Belgium for Sciences and the Arts : Categories in Algebra, Geometry and Logic, A tribute to the work of Francis Borceux and Dominique Bourn on the occasion of their sixtieth birthday (Brussels - Belgium, 10-11/10/2008).

Co-organisation of the "89th Peripatetic Seminar on Sheaves and Logic" (Louvain-la-Neuve - Belgium, 12-13/10/2009).

Co-organisation of the conference «Category Theory, Algebra and Geometry» (Louvain-la-Neuve - Belgium, 26-27/05/2011).

Co-organisation of the «Séminaire Itinérant de Catégories» (Louvain-la-Neuve - Belgium, 19/05/2012).

Guest Editor of Theory and Applications of Categories for the special volume in honour of Aurelio Carboni.

Guest Editor of Theory and Applications of Categories for the special volume in honour of Dominique Bourn.

Member of the Advisory Committee for the conference Category Theory 2004 (Vancouver - Canada, 18-24/07/2004).

Member of the Scientific Committee for the conference 3rd Seminar on Categories and Applications (Santiago de Compostela - Spain, 8-10/09/2005).

Member of the Scientific Committee for the International Category Theory Conference CT 2006 (White Point, Nova Scotia - Canada, 25/06-1/07/2006).

Member of the Scientific Committee for the International Category Theory Conference CT 2010 (Genova - Italy, 20-26/06/2010).

Member of the Scientific Committee for the conference «CatAlg 2011» (Gargnano - Italy, 27/09-01/10/2011).

Referee for :

Advances in Mathematics.

African Journal of Pure and Applied Mathematics,

Algebra Universalis,

Applied Categorical Structures,

Bulletin London Mathematical Society.

Cahiers de Topologie et Géométrie Différentielle Catégorique,

Communications in Algebra.

Homology, Homotopy and Applications,

Journal of Algebra.

Journal of Homotopy and Related Structures.

Journal of Pure and Applied Algebra,  
New York Journal of Mathematics.  
Theory and Applications of Categories,  
Topology and Its Applications.

Reviewer for Mathematical Reviews since 2006.

**Participation to : (\*= with talk)**

Category Theory 90 (Como - Italy, 22-28/07/90).

\* V Convegno Internazionale di Topologia in Italia (Lecce - Italy, 17-21/09/90).

\* Category Theory 91 (Montréal - Canada, 23-30/06/91).

Categorie e Topologia (Gruppo Nazionale di Topologia, Bressanone - Italy, 2-6/09/91).

\* European Colloquium of Category Theory (Tours - France, 25-30/07/94).

Categorical Methods in Topology (Alle-sur-Semois - Belgium, 29/5-2/6/95).

Descent Theory and related Topics (Alle-sur-Semois - Belgium, 27-31/05/96).

\* Hopf Algebras and Quantum Groups (Brussel - Belgium, 15-18/06/1998).

\* Categorical methods in algebra and topology (Nassogne - Belgium, 31/05-4/06/99).

\* Category Theory 99 (Coimbra - Portugal, 19-24/07/99) (invited speaker).

\* Category Theory 2000 (Como - Italy, 17-22/07/2000).

\* CatMAT 2000 (Bremen - Germany, 21-25/08/2000) (invited speaker).

\* 957th American Mathematical Society Meeting (Toronto - Canada, 23-24/09/2000).

New avenues in the teaching of mathematics (L'Aquila - Italy, 2-6/07/2001).

\* Categorical Structures for Descent and Galois Theory, Hopf Algebras and Semiabelian Categories (September 23-28, 2002, Fields Institute in Toronto) (invited speaker).

Category Theory Meeting (Haute-Bodeux, Belgium, 7-13/09/2003).

\* Category Theory 2004 (Vancouver - Canada, 18-24/07/2004).

\* 3rd Seminar on Categories and Applications (Santiago de Compostela - Spain, 8-10/09/2005) (invited speaker).

\* Category Theory 2006 (White Point, Nova Scotia - Canada, 25/06-1/07/2006).

\* Workshop in Categorical Algebra (Milan - Italy, 26-28/10/2006) (invited speaker).



\* Categories in Geometry and in Mathematical Physics (Split - Croatia, 23-29/09/2007) (invited speaker).

Categorical Methods in Algebra, Topology and Computer Science (Coimbra - Portugal, 26-28/10/2007).

\* Max Kelly Conference in Category Theory (Cape Town - South Africa, 21-26/01/2008) (invited speaker).

\* Homotopy Theory and Higher Categories, Specialised Workshops of the CRM Research Programme (Barcelona - Spain, 16-20/06/2008) (invited speaker).

Category Theory 2008 (Calais - France, 22-28/06/2008).

\* V Seminar on Categories and Applications (Pontevedra - Spain, 10-12/09/2008) (invited speaker).

Category Theory 2009 (Cape Town - South Africa, 29/06 - 04/07/2009).

Category Theory 2010 (Genova - Italy, 20-26/06/2010).

Participations to the "Peripatetic Seminar on Sheaves and Logic" :

\* Valenciennes - France, 13-14/02/93.

Trieste - Italy, 11-12/09/93.

\* Utrecht - Pays-Bas, 26-27/10/96.

\* Birmingham - United Kingdom, 28-29/03/98.

\* Brno - Tcheque Republic, 29-30/08/98.

\* Trieste - Italy, 28-29/11/98.

\* Braunschweig - Germany, 5-6/10/2002.

Participations to the "Séminaire Itinérant de Catégories" :

\* Dunkerque - France, 25/3/95.

\* Paris - France, 13/01/96.

Paris - France, 25/01/97.

\* Paris - France, 22/03/97.

Amiens - France, 24/05/97.

\* Dunkerque - France, 25/10/97.

Paris - France, 31/01/98.

\* Amiens - France, 21/01/98.

Dunkerque - France, 13/06/98.

\* Caen - France, 29/01/00.

Amiens - France, 18/11/00.

\* Amiens - France, 10/11/01.

\* Valenciennes - France, 16/5/2003.

Amiens - France, 8/11/2003.

Dunkerque - France, 5/6/2004.

Calais - France, 10/11/2006.

- \* Paris - France, 24/10/2009.
- \* Calais - France, 5/11/2010.
- \* Calais - France, 21/10/2011.

## **Book**

With J. Adamek and J. Rosicky: Algebraic Theories: A Categorical Introduction to General Algebra, with a Foreword by F.W. Lawvere, Cambridge Tracts in Mathematics 184, Cambridge University Press, 259 pages (2011).

## **Research papers**

- 1) [with F. Borceux] A Morita theorem in topology, Atti del V Convegno Internazionale di Topologia in Italia (Lecce, 1990), Supplemento ai Rendiconti del Circolo Matematico di Palermo II-29 (1992) 353-362.
- 2) Monoidal categories for Morita theory, Cahiers de Topologie et Géométrie Différentielle Catégoriques 33 (1992) 331-343.
- 3) [with F. Borceux] On the notion of bimodel for functorial semantics, Applied Categorical Structures 2 (1994) 283-295.
- 4) On the characterization of monadic categories over Set, Cahiers de Topologie et Géométrie Différentielle Catégoriques 35 (1994) 351-358.
- 5) [with F. Cagliari and S. Mantovani] Regularity of the category of Kelley spaces, Applied Categorical Structures 3 (1995) 357-361.
- 6) Localizations of algebraic categories, Journal of Pure and Applied Algebra 108 (1996) 315-320.
- 7) The Brauer and Brauer-Taylor groups of a symmetric monoidal category, Cahiers de Topologie et Géométrie Différentielle Catégoriques 37 (1996) 91-122.
- 8) [with A. Carboni] Regular and exact completions, Journal of Pure and Applied Algebra 125 (1998) 79-116.
- 9) [with F. Grandjean] Morita equivalence for regular algebras, Cahiers de Topologie et Géométrie Différentielle Catégoriques 39 (1998) 137-153.
- 10) Localizations of algebraic categories II, Journal of Pure and Applied Algebra 133 (1998) 317-326.
- 11) [with M. Gran] On the exact completion of the homotopy category, Cahiers de Topologie et Géométrie Différentielle Catégoriques 39 (1998) 287-297.
- 12) [with M. Gran] Localizations of Maltsev varieties, Theory and Applications of Categories 5 (1999) 281-291.

- 13) Multi-bimodels, Cahiers de Topologie et Géométrie Différentielle Catégoriques 40 (1999) 284-296.
- 14) [with S. Kasangian] Factorization systems for symmetric cat-groups, Theory and Applications of Categories 7 (2000) 47-70.
- 15) Quasi-varieties of presheaves, Theory and Applications of Categories 7 (2000) 236-238.
- 16) [with M.C. Pedicchio] On the abstract characterization of quasi-varieties, Algebra Universalis 43 (2000) 269-278.
- 17) [with M.-A. Moens] Groupoids and the Brauer group, Cahiers de Topologie et Géométrie Différentielle Catégoriques 41 (2000) 305-313.
- 18) [with S. Lack] When do completion processes give rise to extensive categories ? Journal of Pure and Applied Algebra 159 (2001) 203-230.
- 19) Essential localizations and infinitary exact completion, Theory and Applications of Categories 8 (2001) 465-480.
- 20) [with J. Rosicky] Exact completion and representations in abelian categories, Homology, Homotopy and Applications 3 (2001) 453-466.
- 21) [with J. Adamek and J. Rosicky] On algebraically exact categories and essential localizations of varieties, Journal of Algebra 244 (2001) 450-477.
- 22) [with M. Grandis] A higher dimensional homotopy sequence, Homology, Homotopy and Applications 4 (2002) 59-69.
- 23) [with I. Le Creurer and F. Marmolejo] Beck's theorem for pseudo-monads, Journal of Pure and Applied Algebra 173 (2002) 293-313.
- 24) A Picard-Brauer exact sequence of categorical groups, Journal of Pure and Applied Algebra 175 (2002) 383-408.
- 25) [with F. Borceux] Azumaya categories, Applied Categorical Structures 10 (2002) 449-467.
- 26) [with D. Bourn] Extensions of symmetric cat-groups, Homology, Homotopy and Applications 4 (2002) 103-162.
- 27) [with C. Centazzo] A duality relative to a limit doctrine, Theory and Applications of Categories 10 (2002) 486-497.
- 28) On the categorical structure of  $H^2$ , Journal of Pure and Applied Algebra 177 (2003) 303-308.
- 29) [with M. Dupont] Proper factorization systems in 2-categories, Journal of Pure and Applied Algebra 179 (2003) 65-86.

- 30) [with C. Centazzo] Sheaf theory, chapter VII in "Categorical Foundations. Special Topics in Order, Topology, Algebra and Sheaf Theory", M.C. Pedicchio and W. Tholen Editors, Encyclopedia of Mathematics and its Applications 97, ISBN 0521834147, Cambridge University Press (2003) 311-357.
- 31) [with C. Centazzo and J. Rosicky] A characterization of locally D-presentable categories, Cahiers de Topologie et Géométrie Différentielle Catégoriques 45 (2004) 141-146.
- 32) [with J. Duskin and R. Kieboom] Morphisms of 2-groupoids and low-dimensional cohomology of crossed modules, Fields Institute Communication Series 43 (2004) 227-241.
- 33) [with S. Kasangian and S. Lack] Coalgebras, braidings, and distributive laws, Theory and Applications of Categories 13 (2004) 129-146.
- 34) [with A. del Rio and J. Martinez Moreno] Chain complexes of symmetric categorical groups, Journal of Pure and Applied Algebra 196 (2005) 279-312.
- 35) [with S. Kasangian and G. Metere] Split extensions, semidirect product, and holomorph of categorical groups, Homology, Homotopy and Applications 8 (2006) 145-167.
- 36) [with P. Carrasco and A.R. Garzon] On categorical crossed modules, Theory and Applications of Categories 16 (2006) 585-618.
- 37) [with C. Centazzo] A classification of geometric morphisms and localizations for presheaf categories and algebraic categories, Journal of Algebra 303 (2006) 77-96.
- 38) [with S. Kasangian, S. Mantovani and G. Metere] External derivations of internal groupoids, Journal of Pure and Applied Algebra 212 (2008) 175-192.
- 39) Bipullbacks and calculus of fractions, Cahiers de Topologie et Géométrie Différentielle Catégoriques 51 (2010) 83-113.
- 40) [with J. Adamek and J. Rosicky] What are sifted colimits ? Theory and Applications of Categories 23 (2010) 251-260.
- 41) [with S. Kasangian and G. Metere] The Ziqqurath of exact sequences of n-groupoids, Cahiers de Topologie et Géométrie Différentielle Catégoriques 52 (2011) 2-44.
- 42) [with J. Adamek and J. Rosicky] Birkhoff's variety theorem in many sorts, Algebra Universalis (to appear).
- 43) [with O. Abbad, S. Mantovani and G. Metere] Butterflies in a semi-abelian context (submitted).

44) [with S. Mantovani and G. Metere] Profunctors in Maltcev categories and fractions of functors (submitted).