CV - Sylvie Monniaux

October 2019

51 years old, assistant professor in Marseille (France) since 1998, PhD in 1995 at the university of Besançon (France), HDR (habilitation) in 2007 at the university of Aix-Marseille (France), 34 papers listed in MathSciNet : http://www.ams.org/mathscinet/search/publications.html?pg1=INDI&s1=601753.

Research interests

Themes

Harmonic analysis, functional analysis, partial differential equations.

My research lies between functional analysis, (real) harmonic analysis and partial differential equations. I am an expert in the theory of semigroups, evolutions equations, (holomorphic) functional calculus for sectorial and bisectorial operators, techniques in the study of singular integrals and elliptic differential operators in non smooth domains.

Keywords

Maximal regularity, holomorphic functional calculus, non autonomous Cauchy problem, evolution equations, divergence form operators, non smooth domains, Navier-Stokes equations, first order systems.

Contents

1 Professional experiences **2**
- 1.1 Personal informations . . . 2
- 1.2 Experiences . . . 3
- 1.3 Teaching activities . . . 4
- 1.4 Collaborations - Talks . . . 5

2 Research Activities **7**
- 2.1 Realisations . . . 7
  - 2.1.1 Maximal regularity . . . 7
  - 2.1.2 Navier-Stokes equations . . . 7
  - 2.1.3 Other operators/pde's . . . 8
  - 2.1.4 Focus on the years 2012-2019 . . . 8
- 2.2 In progress . . . 8

3 Publications **9**
- [L] Book . . . 9
- [A] International Refereed Journals . . . 9
- [C] Proceedings (with reviews) . . . 10
- [N] Comptes Rendus de l'Académie des Sciences . . . 10
- [R] Reports . . . 10
- [P] In preparation . . . 11

1 Professional experiences

1.1 Personal informations

Name	Sylvie Monniaux french citizenship, born January 28, 1968 (51) in Saint-Germain-en-Laye (France).
Personal address	5 rue Cora Vaucaire - Bât B1 Phone: +33 (0)4 91 37 48 31 13003 Marseille - France
Current position	Assistant professor (maître de conférences - MCF) at Aix-Marseille Univ., France
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Web page	https://www.i2m.univ-amu.fr/perso/sylvie.monniaux/

Research interests	Harmonic analysis, functional analysis, partial differential equations.
since Jan. 2019	Participant of the ANR (french National Research Agency) project "Real Analysis and GEometry" (RAGE), n° ANR-18-CE40-0012.
since Jan. 2016	Participant of the ANR project "INhomogeneous Flows: Asymptotic Models and Interfaces Evolution" (INFAMIE), n° ANR-15-CE40-0011-04.
since Jan. 2012	Participant of the ANR project "Harmonic Analysis at its Boudaries" (HAB), n° ANR-12-BS01-0013-03.
Previous positions	
Sept. 2018	Échelon exceptionnel MCF HC.
2011/12 and 2014/15	Sabbatical years at the CNRS (Centre National de la Recherche Scientifique).
2010	Sabbatical semester.
Sept. 2009	Maître de conférences "Hors Classe" (MCF HC).
2002/03	Sabbatical year at the CNRS.
2000-2012, 2018-	National research grant (renewed in 2004, 2008 and 2018).
since Sept.1998	Assistant professor (maître de conférences - MCF) at Univ. Aix-Marseille (France).
1995-1998	Assistant professor at the Universität Ulm (Germany).
1993-1995	Teaching assistant at the Université de Franche-Comté (Besançon, France).
Prof. organisation	Member of the SMF (Société Mathématique de France).
Academic degrees	
03.04.2007	Defense of my habilitation at the Université Aix-Marseille "Régularité maximale et équations de Navier-Stokes", (Maximal regularity and Navier-Stokes equations).

committee:

Michel Crouzeix	(Rennes, France),	Thierry Gallouët	(Marseille, France),
Wolfgang Arendt	(Ulm, Germany),	Michel Pierre	(Rennes, France),
Jean-Yves Chemin	(Paris 6, France),	Zhongwei Shen	(Univ. Kentucky, USA),
Thierry Coulhon	(Cergy-Pontoise, France),	Philippe Tchamitchian	(Marseille, France).

28.09.1995 Defense of my PhD thesis at the Université de Franche-Comté (Besançon, France)
"Générateur analytique et régularité maximale"
(Analytic generator and maximal regularity).
advisor: Wolfgang Arendt.

thesis committee:

Philippe Bénilan	(Besançon, France),	Matthias Hieber	(Karlsruhe, Germany),
Jean-Bernard Baillon	(Lyon, France),	Christian Le Merdy	(Besançon, France),
Robert Deville	(Bordeaux, France),	Jan Prüss	(Halle, Germany).

1993	Master degree in Mathematics at the Université de Franche-Comté.
1989-1993	Student at the École Normale Supérieure (Cachan, France).

1.2 Experiences

Committees

- **national level**

2003-07 Conseil National des Universités, 25ème section (national committee of evaluation, Mathematics).

2018- Member of the Administration Committee of the SMF (Société Mathématique de France), in charge of the publication/diffusion house in Luminy.

- **local level**

2014- Member of the department board.

2008-11 Member of the Scientific Committee (conseil scientifique) of the University.

2007-11 Associate director education.

2004-07 Member of the Administration Committee (conseil d'administration) of the University.

- **research**

2007-14 advisor for acquisition of books at the CIRM (CNRS-SMF) library.

depuis 1999 Referee for the following mathematical journals:

Math. Z., J. Funct. Anal., Archiv Math., J. Diff. Eq., Appl. Math. Letters, J. of Math. Physics, J. Aust. Math. Soc., J. Nonlin. Anal.-A, J. Evol. Equ., Electronic J. Diff. Eq., Ann. Inst. Fourier, Adv. Math. Sci. Appl., J. Math. Anal. Appl., Control Optim. Calc. Var., Proc. Edinburgh Math. Soc., Pub. Mat., CPAA, DCDS, M2AS, SIAM J. Math. Anal.

2001-19 Member of the following hiring/selection committees:

Aix-Marseille, Besançon, Paris 6, Orsay (Paris 11), Bordeaux, Nantes, Lyon, Australian National University (for a post-doc position in 2015), Nantes, Lyon and Marseille (2016), Paris-Sud Saclay (2017), Bordeaux (2018), Marseille (2019).

Organisation of conferences

Juil. 2020 Co-organiser (with El Maati Ouhabaz and Abdelaziz Rhandi) of the "12th Euro-Maghreb Workshop on Evolution Equations", at the "Centre International de Rencontres Mathématiques" (CIRM), in Luminy (France).

Sept. 2019 Co-organiser (with Frédéric Charve, Raphaël Danchin and Boris Haspot) of the SMF summer school "Inhomogeneous flows: asymptotic models and interfaces evolution", at the CIRM.

Apr. 2018 Co-organiser (with Pierre Portal) of the international conference "Harmonic analysis of partial differential equations", at the "Centre International de Rencontres Mathématiques" (CIRM), in Luminy (France).

Nov. 2008 Co-organiser (with Fatiha Alabau and El Maati Ouhabaz) of the 6th Euro-Maghreb workshop "Semigroups, evolution equations and applications", at the CIRM.

Nov. 2007 Co-organiser (with Karim Kellay) of the workshop "Functional and harmonic analysis and applications", at the CIRM.

Oct. 2005 Co-organiser (with El Maati Ouhabaz and Valentin Zagrebnov) of the conference "Operator semigroups, evolution equations and spectral theory in mathematical physics " at the CIRM.

Mars 2001 Organiser of a graduate week "Analyse fonctionnelle et équations aux dérivées partielles" (Functional analysis and partial differential equations) at the CIRM.

1999-2000 Co-organiser (with Hervé Gaussier) of the Analysis Research Seminar.

Déc. 1997 Co-organiser of the workshop TuLka "Evolutionsgleichungen und Operatorhalbgruppen" (Evolution equations and semigroups) in Blaubeuren (Germany).

PhD Thesis committees

2019 Hoang Phuong Nguyen (Toulouse, France; advisors: Pierre Bousquet and Radu Ignat),
Jiao He (Lyon, France; advisors: Lorenzo Brandolese and Dragos Iftimie),
Benjamin Célariès (Lyon, France; advisor: Isabelle Chalendar).

2018 Mahdi Achache (Bordeaux, France; advisor: El Maati Ouhabaz).

2015 Yi Huang (Paris, France; advisor: Pascal Auscher).

2005 César Poupaud (Bordeaux, France; advisor: El Maati Ouhabaz).

1.3 Teaching activities

Teaching responsabilities

2018- Coordinator for the 2nd academic year of mathematics studies in Marseille.

2011, 2013-17 Member of the committee for the "agrégation de mathématiques", a national level competitive exam for hiring high school teachers in mathematics.

2004-07 Coordinator for undergraduate studies (first 3 academic years) in mathematics and computer science in Marseille.

2000-2004 Coordinator for the 3rd academic year (licence) of mathematics studies in Marseille.

1996-99 Coodinator of ERASMUS collaborations between Universität Ulm (Germany) and Universités de Bordeaux and Marne-la-Vallée and between Aix-Marseille and Ulm (Germany).

Supervising students

2018- PhD advisor for the thesis of Clément Denis, Marseille.

2018-19 Advisor for a student in engineering school (Centrale Marseille) specialising in research.

2017-18 Advisor for Master 2 (5^{th} academic year) students: research projects.

2000-16 Advisor for Master 1 (4^{th} academic year) students: research projects.

2009-10 Advisor for 3 students of the "École Normale Supérieure de Lyon".

Since 1998 Teaching assignment in France is 192 hours per year.

Details of the recent teaching available on my webpage:

https://www.i2m.univ-amu.fr/perso/sylvie.monniaux/enseignement

Aside the classical lectures and tutorials in the first, second and third academic years, I taught the following graduate courses (sometimes also with tutorials):

Graduate courses abroad

Oct. 2011-Feb. 2012 Lecture (3 hours per week) "PDEs in non smooth domains"
at the Technische Universität Darmstadt (Germany), as "Gastprofessor" (invited professor) during winter semester 2011-12.

Mars 2010 Lecture (5 hours) "Maximal regularity and applications to partial differential equations"
in the Spring school "Analytical and numerical aspects of evolution equations", at the Technische Universität Berlin (Germany).

Mai 2009 Lecture (8 hours) "Functional analysis and partial differential equations"
at the TU Berlin.
The script of the lecture has been published in a "de Gruyter Proceedings in Mathematics" volume; also available on my webpage.

May 2000 Lecture (8 heures) "Analytic generator and maximal regularity"
at the University of Puerto-Rico (USA).

in Marseille

2016 Lecture (5^{th} academic year - 25 hours) "Problèmes d'évolution non autonome" (Non autonomous evolution problems).

2011 Lecture (5^{th} academic year - 24 hours) "Problèmes au bord pour des edp elliptiques" (Boundary value problems for elliptic pde's).

2007 Lecture (5^{th} academic year - 24 hours) "Semi-groupes, formes et équations de Navier-Stokes" (Semigroups, forms and Navier-Stokes equations).

2000 Lecture (5^{th} academic year - 12 hours) "Équations de Navier-Stokes, II" (Navier-Stokes equations, part II).

Teaching mobility

2005 and 2010 One week in Ulm (Germany) with Erasmus (european project for teacher/student mobility).

1995-1998 Teaching assistant in Ulm (Germany): tutorials in functional analysis, linear algebra, multivariable calculus, differential equations.

1993-1995 Teaching assistant in Besançon (France): tutorials for 1^{st} and 2^{nd} year students.

1.4 Collaborations - Talks

Invitations abroad

Oct. 2014-June 2015	8 months at the Australian National University (ANU), in Canberra (Australia).
May 2013	2 weeks at ICMAT, Madrid (Spain).
June 2012	2 weeks at Temple University, Philadelphia (Pennsylvania - USA).
Mar.-Apr. 2012	3 weeks at the University of Missouri (Columbia, USA).
Oct. 2011-Mar. 2012	One semester as invited professor at the Technische Universität Darmstadt (Germany).
Aug.-Sept. 2011	6 weeks at the ANU, Canberra (Australia).
Avr. 2010	2 weeks at the University of Missouri (Columbia, USA).
Jan.-Feb. 2010	"Research in pairs", 3 weeks at the MFO (Oberwolfach, Germany).
May 2009	1 month invitation "Luftbrückendank Foundation Scholarship" at the TU Berlin (Germany).
Apr. 2008	2 weeks invitation (UMC Miller Scholarship) at the University of Missouri (USA).
Nov. 2005	1 month invitation (UMC Miller Scholarship) at the University of Missouri (USA).
Apr. 2003	1 month at the ANU, Canberra (Australia).
Feb.-Mar. 2003	2 months (UMC Miller Scholarship) at the University of Missouri (USA).
June-Dec. 2002	6 months at the ANU, Canberra (Australia).
May 2000	1 month at the University of Puerto-Rico, San-Juan (USA).

Invited collaborators

Jan.-Feb. 2016	Tom ter Elst, prof. at the University of Auckland (New Zealand), invited one month at the Mathematics Institut in Marseille (I2M).
April 2014	Wolfgang Arendt, prof. at the Universität Ulm (Germany), invited 3 weeks at the I2M.
June 2009	Dorina Mitrea and Marius Mitrea, prof. at the University of Missouri (Columbia, USA), invited one month in Marseille.
Dec. 2006 - Jan. 07	Steve Hofmann, prof. at the University of Missouri (Columbia, USA), invited one month in Marseille.
June 2004	Marius Mitrea, prof. at the University of Missouri (Columbia, USA), invited one month in Marseille.

International conferences since 2012

Mar. 2020	"Mathflows 2020" in Bedlewo (Poland).
Oct. 2019	"Evolution Equations: Applied and Abstract Perspectives" at the CIRM, Luminy (France).
May 2019	"Parabolic evolution equations, harmonic analysis and spectral theory" in Bad Herrenalb (Germany): *Behaviour of the Stokes operator under domain perturbation.*
Mar. 2019	"Les 60 ans de Jean-Yves Chemin", at the Institut Henri Poincaré (Paris, France): *Domain perturbations for the Stokes operator(s).*
Sept. 2018	"Mathflows 2018", in Porquerolles (France).
May 2018	"Workshop on mathematical fluid dynamics", in Bad Boll (Germany).
Apr. 2018	"Evolution equations in Ulm 2018", in Ulm (Germany): *Compactness of L^2 traces in X_T and X_N on Lipschitz domains.*
Feb. 2018	"Harmonic Analysis Conference Celebrating the Mathematical Legacy of Alan M^{c}Intosh", in Canberra (Australia): *First order approach to L^p estimates for the Stokes operator on Lipschitz domains.*

Dec. 2017	"International Workshop on Recent Advances in Operator Semigroups", in Delhi (India): *First order approach to L^p estimates for the Stokes operator on Lipschitz domains.*
May 2017	Workshop "Geophysical Fluid Dynamics", at the MFO (Oberwolfach, Germany).
Apr. 2017	"Operator semigroups in Analysis: modern developments", in Bedlewo (Pologne): *First order approach to L^p estimates for the Stokes operator on Lipschitz domains.*
Mar. 2017	"Theory of the incompressible Navier-Stokes system and related topics", in Calais (France): *Trace problems related to the Navier-Stokes system in rough domains.*
Jan. 2017	"Mathflows 2017", in Bedlewo (Poland): *First order approach to L^p estimates for the Stokes operator on Lipschitz domains.*
Oct. 2016	Euro-Maghreb Workshop, in Blaubeuren (Germany): *The Dirichlet-to-Neumann problem associated with the Stokes operator.*
Sept. 2016	"Workshop on Interactions of Harmonic Analysis and Operator Theory" organised by the London Mathematical Society, in Birmingham (UK): *First order approach to L^p estimates for the Stokes operator on Lipschitz domains.*
Juin 2016	"Recent Advances in Hydrodynamics" at the BIRS, Banff (Canada): *Navier-Stokes equations with time-dependent boundary conditions.*
May 2016	"Singular Integrals and Partial Differential Equations" in Helsinki (Finland): *First order approach to L^p estimates for the Stokes operator on Lipschitz domains.*
Sept. 2015	Workshop "Mathflows", in Porquerolles (France): *Navier-Stokes equations with time-dependent boundary conditions.*
Dec. 2014	"8^{th} Australian-New Zealand Mathematics Convention", in Melbourne (Australia): *Navier-Stokes equations with time-dependent boundary conditions.*
May 2014	"Vorticity, Rotation and Symmetry III" at the CIRM: *The Navier-Stokes system with time-dependent Robin-type boundary conditions.*
Mar. 2014	Workshop "Maxwell-Stefan meets Navier-Stokes-Modeling and Analysis of Reactive Multi-Component Flows", in Halle (Germany): *The Navier-Stokes system with time-dependent Robin-type boundary conditions.*
Jan. 2014	"Fluid-Snow Workshop", at La Clusaz: *Traces of vector fields in non smooth domains.*
Oct. 2013	"Analyse fonctionnelle, harmonique et probabilités" (Functional analysis, harmonique analysis and probability), in Lyon: *Traces et inégalité de Poincaré dans des domaines spéciaux Lipschitz.*
June 2013	Symposium "Operator semigroups meet complex analysis, harmonic analysis and mathematical physics", inHerrnhut (Allemagne): *The Hodge Laplacian with Robin-type boundary conditions in bounded Lipschitz domains.*
Feb. 2013	Workshop "Geophysical Fluid Dynamics", at the MFO (Oberwolfach, Germany) : *Hodge-Navier-Stokes equations with Robin boundary conditions in bounded Lipschitz domains.*
Oct. 2012	Workshop "Mathflows", in Porquerolles: *Robin boundary conditions for the Navier-Stokes system in Lipschitz domains.*
July 2012	Workshop "Complex fluids", in Darmstadt (Germany): *The Navier-Stokes-Coriolis system in (unbounded) domains.*
June 2012	"Euro-Maghrebian Workshop", in Lecce (Italy): *The divergence theorem involving the pointwise nontangential trace.*
•	**colloquia**
July 2019	Potsdam (Germany): *Holomorphic functional calculus and nonlinear evolution equations* (in pair with Lutz Weis).
Nov. 2018	"North British functional analysis seminar" in Oxford: *Potential operators, analyticity and bounded holomorphic functional calculus for the Stokes operator* (2 talks).

2 Research Activities

2.1 Realisations

2.1.1 Maximal regularity

The problem is the following: given an unbounded operator A on a functional space Y, one considers the Cauchy problem

$$\partial_t u + Au = f, \quad u(0) = 0, \tag{MR}$$

for f in a function space X. The question is then to find conditions on A and/or X so that (MR) has a solution u with the property that $\partial_t u$ and Au both belong to the space X.

[A24], **[A23]** Autonomous L^p maximal regularity (A does not depend on t): sectorial operators with bounded imaginary powers, $X = L^p(0,T;Y)$.

[A25], **[A22]**, **[A20]**, **[A21]**, **[N2]**, **[A4]** Non autonomous L^p maximal regularity (A depends on t), $X = L^p(0,T;Y)$.

[A9], **[A8]**, **[A2]** Maximal regularity in tent spaces $X = T^{p,2}$ ($Y = L^2$) for operators in divergence form.

2.1.2 Navier-Stokes equations

Those equations have the following form:

$$\begin{array}{rcll} \partial_t u - \Delta u + (u\cdot\nabla)u + \nabla p &=& 0 & \text{in } (0,\infty)\times\mathbb{R}^d \\ \nabla\cdot u &=& 0 & \text{in } (0,\infty)\times\mathbb{R}^d \\ u(0) &=& u_0 & \text{in } \mathbb{R}^d, \end{array} \tag{NS}$$

where $u : (0,\infty)\times\mathbb{R}^d \to \mathbb{R}^d$ is the velocity and $p : (0,\infty)\times\mathbb{R}^d \to \mathbb{R}$ represents the pressure of the fluid, $u_0 : \mathbb{R}^d \to \mathbb{R}^d$ being the initial velocity which depends only on the space variable. The critical space in d dimensions can be viewed as the space where the linear part of the equation has "the same weight" as the nonlinear part; for instance, the Lebesgue space L^d or the Sobolev space $H^{\frac{d}{2}-1}$.

[N1], **[A19]**, **[A18]**, **[C4]** Uniqueness of mild solutions in L^d in the whole space (first proved by Furioli, Lemarié-Rieusset and Terraneo, shorter proof using maximal regularity in [N1]), and in Lipschitz domains in dimension 3 and above.

[A17], **[A16]**, **[R4]**, **[A7]**, **[L1]** Existence of solutions in $H^{\frac{1}{2}}$ in the case of bounded Lipschitz domains and any open sets (bounded or not) in dimension 3, Dirichlet boundary conditions.

[A14], **[A13]**, **[A7]**, **[L1]** Existence of solutions in L^3 in the case of bounded Lipschitz domains Ω in dimension 3, "Navier-slip" (or "Hodge" : $\nu\cdot u = 0$ and $\nu\times\operatorname{curl} u = 0$ on $\partial\Omega$) boundary conditions, writing the nonlinear part as $(u\cdot\nabla)u = -u\times\operatorname{curl} u + \frac{1}{2}\nabla|u|^2$, using results proved in [A15].

[A11], **[A7]** Existence of solutions in L^3 in dimension 3 in bounded Lipschitz domains with Neumann boundary conditions.

[A6], **[R3]** Study of the Navier-Stokes-Coriolis system in bounded or unbounded domains.

[A5] Navier-Stokes equations in Lipschitz domains Ω with non autonomous boundary conditions: $\nu(x)\cdot u(t,x) = 0$ et $\nu(x)\times\operatorname{curl} u(t,x) = \beta(t,x)u(t,x)$ for $t > 0$ and $x \in \partial\Omega$ where $\beta(t,x)$ is a positive symmetric matrix (uniformly in $t > 0$ and $x \in \partial\Omega$) such that $\nu(x)$ is an eigenvector for all $x \in \partial\Omega$.

2.1.3 Other operators/pde's

[A15], [A3] Study of Bogovskiĭ type operators to find a right inverse for the divergence or other differential forms on Riemannian manifolds, in Lipschitz domains.

[A12] Lamé operator in bounded Lipschitz domains.

[A10] Extension of the results in [A14]: Riesz transforms for the Hodge Laplacian in L^p, in the case of bounded Lipschitz domains.

[C3] Study of the Poisson integral in the case of bounded domains with the uniform exterior ball condition (more or less Lipschitz domains for which the singularities are on the convex parts of the boundary)

[C2], [R2] Elementary proofs of existence of traces on the boundary $\partial\Omega$ for fonctions in $H^1(\Omega)$, and vector fields $u \in L^2(\Omega, \mathbb{R}^3)$ such that $\operatorname{div} u \in L^2(\Omega)$, $\operatorname{curl} u \in L^2(\Omega, \mathbb{R}^3)$ and $\nu \cdot u = 0$ on $\partial\Omega$ (or $\nu \times u = 0$ on $\partial\Omega$).

[A1] Behaviour of the Stokes operator with homogeneous Dirichlet boundary conditions (and more precisely, of its resolvent) under domain perturbations: increasing sequences of domains (with no regularity) or decreasing sequences of domains.

2.1.4 Focus on the years 2012-2019

- References [A7], [A6], [A14], [A13], [A11], [R4], [R3], [C2], [A5] [L1]: The last 5 years, I have been focusing more precisely on the (linear) Stokes (or Stokes-Coriolis) system with various boundary conditions in bounded or unbounded Lipschitz domains. Once the properties of the linear problem are well understood, classical fixed point theorems allow to find global solutions for the nonlinear Navier-Stokes system for small initial conditions. The Stokes operator has very different properties from the Laplacian in the case of non smooth domains.
- Reference [L2]: This book (6 chapters) written in collaboration with Dorina Mitrea, Irina Mitrea and Marius Mitrea, mainly deals with issues in analysis that permit construction of a metric which is compatiblequantitatively, topologically or algebraicallywith a given setting. Some classical results in the book are: the Aleksandrov-Uryson metrization theorem (point-set topology), the Macas-Segovia metrization theorem (harmonic analysis), the Aoki-Rolewicz normality theorem (functional analysis), and the Birkhoff-Kakutani metrization theorem (topological group theory). More precisely, we show how classical theorems such as the open mapping theorem, the closed graph theorem and the uniform boundedness principle can be extended in a more general setting than complete metric spaces.

2.2 In progress

[P2] Using maximal regularity techniques, as in [N1], together with Lorenzo Brandolese (from Lyon), we prove uniqueness of solutions of the Boussinesq system (Navier-Stokes equations coupled with a heat equation) in the critical space of continuous-in-time with values in L^3 in the space variable for the velocity of the fluid and the crititcal space $\mathscr{C}(L^1) \cap L^2(L^{3/2})$ for the temperature.

[P1] In this book, I intend to collect the recent knowledge on the Stokes operator and Navier-Stokes equations with different boundary conditions in non smooth domains.

3 Publications

Available on the webpage: https://www.i2m.univ-amu.fr/perso/sylvie.monniaux/en:publications

Book

[L1] S. Monniaux and Z. Shen. Stokes problems in irregular domains with various boundary conditions. In *Handbook of mathematical analysis in mechanics of viscous fluids*, pages 207–248. Springer, Cham, 2018.

[L2] D. Mitrea, I. Mitrea, M. Mitrea, and S. Monniaux. *Groupoid metrization theory.* Applied and Numerical Harmonic Analysis. Birkhäuser/Springer, New York, 2013. With applications to analysis on quasi-metric spaces and functional analysis.

International Refereed Journals

[A1] S. Monniaux. Behaviour of the Stokes operators under domain perturbation. *Sci. China Math.*, 62(6):1167–1174, 2019.

[A2] P. Auscher, S. Monniaux, and P. Portal. On existence and uniqueness for non-autonomous parabolic Cauchy problems with rough coefficients. *Ann. Sc. Norm. Super. Pisa Cl. Sci. (5)*, 19(2):387–471, 2019.

[A3] A. McIntosh and S. Monniaux. Hodge-Dirac, Hodge-Laplacian and Hodge-Stokes operators in L^p spaces on Lipschitz domains. *Rev. Mat. Iberoam.*, 34(4):1711–1753, 2018.

[A4] W. Arendt and S. Monniaux. Maximal regularity for non-autonomous Robin boundary conditions. *Math. Nachr.*, 283(11-12):1325–1340, 2016.

[A5] S. Monniaux and E.M. Ouhabaz. The Navier-Stokes system with time-dependent Robin-type boundary conditions. *J. Math. Fluid Mech.*, 17:707–722, 2015.

[A6] M. Hieber and S. Monniaux. Well-posedness results for the Navier-Stokes equations in the rotational framework. *Discrete Contin. Dyn. Syst.*, 33(11-12):5143–5151, 2013.

[A7] S. Monniaux. Various boundary conditions for Navier-Stokes equations in bounded Lipschitz domains. *Discrete Contin. Dyn. Syst. Ser. S*, 6(5):1355–1369, 2013.

[A8] P. Auscher, C. Kriegler, S. Monniaux, and P. Portal. Singular integral operators on tent spaces. *J. Evol. Equ.*, 12(4):741–765, 2012.

[A9] P. Auscher, S. Monniaux, and P. Portal. The maximal regularity operator on tent spaces. *Commun. Pure Appl. Anal.*, 11(6):2213–2219, 2012.

[A10] S. Hofmann, M. Mitrea, and S. Monniaux. Riesz transforms associated with the Hodge Laplacian in Lipschitz subdomains of Riemannian manifolds. *Ann. Inst. Fourier (Grenoble)*, 61(4):1323–1349 (2012), 2011.

[A11] M. Mitrea, S. Monniaux, and M. Wright. The Stokes operator with Neumann boundary conditions in Lipschitz domains. *J. Math. Sci. (N. Y.)*, 176(3):409–457, 2011. Problems in mathematical analysis. No. 57.

[A12] M. Mitrea and S. Monniaux. Maximal regularity for the Lamé system in certain classes of non-smooth domains. *J. Evol. Equ.*, 10(4):811–833, 2010.

[A13] M. Mitrea and S. Monniaux. The nonlinear Hodge-Navier-Stokes equations in Lipschitz domains. *Differential Integral Equations*, 22(3-4):339–356, 2009.

[A14] M. Mitrea and S. Monniaux. On the analyticity of the semigroup generated by the Stokes operator with Neumann-type boundary conditions on Lipschitz subdomains of Riemannian manifolds. *Trans. Amer. Math. Soc.*, 361(6):3125–3157, 2009.

[A15] D. Mitrea, M. Mitrea, and S. Monniaux. The Poisson problem for the exterior derivative operator with Dirichlet boundary condition in nonsmooth domains. *Commun. Pure Appl. Anal.*, 7(6):1295–1333, 2008.

[A16] M. Mitrea and S. Monniaux. The regularity of the Stokes operator and the Fujita-Kato approach to the Navier-Stokes initial value problem in Lipschitz domains. *J. Funct. Anal.*, 254(6):1522–1574, 2008.

[A17] S. Monniaux. Navier-Stokes equations in arbitrary domains: the Fujita-Kato scheme. *Math. Res. Lett.*, 13(2-3):455–461, 2006.

[A18] S. Monniaux. Unicité dans L^d des solutions du système de Navier-Stokes: cas des domaines lipschitziens. *Ann. Math. Blaise Pascal*, 10(1):107–116, 2003.

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