Curriculum Vitæ

Identity

Hélène Eynard-Bontemps
Born on december 21st, 1982, in Riom, France.
French nationality.

Professor in mathematics at Sorbonne Université,
Research department: IMJ–PRG, UMR 7586 (Team "Analyse Algébrique")
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Professional experience

Since 2025	**Professor** in Mathematics at Sorbonne Université, IMJ – PRG.
2022	**Habilitation à diriger des recherches** (French diploma required to supervise PhD students). Title : *Flows and free abelian group actions in dimension 1.* Jury : M.-C. Arnaud, C. Bonatti, B. Fayad, É. Ghys, F. Le Roux, T. Tsuboi.
2020 – 2025	**Assistant Professor** in Mathematics at Université Grenoble Alpes, Institut Fourier.
2010 – 2020	**Assistant Professor** in Mathematics at Sorbonne Université, IMJ-PRG.
2009 – 2010	**JSPS Postdoc position** at Tokyo University (Graduate School of Mathematical Sciences), supervisor: Pr. Takashi Tsuboi.
2006 – 2009	**PhD student in Mathematics and teacher of practical courses** : under the supervision of Emmanuel Giroux, Unité de Mathématiques Pures et Appliquées, ENS Lyon, France, defended on September 28th, 2009. Title: *On two connected connectedness questions about foliations and their holonomies.* Jury: Y. Eliashberg, É. Ghys, E. Giroux, P. Le Calvez, S. Crovisier, J.-C. Yoccoz.
2006	**Agrégation in Mathematics** (national competitive exam to become highschool teacher).
2002-2006	**Civil servant intern**, ENS Lyon.

Grants, distinctions

- 2024-2026: Principal investigator of the ECOS-France-Chili project "Small spaces under action" (12 researchers, 40 000€).
- 2021-2022: Principal investigator of the IRGA project ADMIN (2 researchers, 5000€).
- 2019-2023: Member of the ANR project Gromeov.
- 2011-2017: Bonus of commitment to research ("PIR") of the Université Pierre et Marie Curie (20 000€)
- 2007-2011: Member of the ANR project Symplexe.

Research & teaching stays abroad

- July-August 2023: Research stay at the University of Santiago de Chile.
- November 2022 - February 2023 : CNRS 6 months posting at the CMM (Universidad de Chile, Santiago).
- May 2017 : Université de Montréal, invited by Emmanuel Giroux.
- Sept.-Dec. 2015 : Research stay at UFF, Niteroi, Rio de Janeiro, Brazil, invited by Pr. S. Firmo.
- January-February 2015 and 2016: Three weeks course at AIMS Sénégal.
- May-June 2007 : University of Tokyo, invited by Pr. Takashi Tsuboi.

Education

2022	**HDR** (French diploma required to supervise PhD students).
2006–2009	**PhD** under the supervision of Emmanuel Giroux. UMPA, ENS Lyon.
2005–2006	**Bachelor in Modern Litterature**, Université Paris VII Denis Diderot.
2004–2005	**Masters of Mathematics** (2^{nd} year), ENS Lyon. **Agrégation in Mathematics**
2003–2004	**Masters of Mathematics**, ENS Lyon and Imperial College of London.
2002–2003	**Licence of Mathematics**, ENS Lyon.
2000–2002	**Preparatory Classes for the Grandes Écoles** , Blaise Pascal Highschool, Clermont-Ferrand. *Admission at the École Normale Supérieure of Lyon.*

Professional training

- Course "Reflexion on the matter of mental suffering of students", UGA (2018, 2 days).
- MOOC "Training to teach at higher education level", coordinated by the Ministry for higher education and research (2017-2018).
- *Audimath* Days on writing popularization articles, Lyon (2016, 2 days).
- Course "Acting for professional equality women/men in research – Key steps of the career in mathematics" coordinated by CNRS with the support of the project INTEGER (2014, 2 days).
- Course "Learning to teach – Fostering the success of students and reducing failure", UPMC (2013, 2 days).
- Training for higher education, Centre d'Initiation à l'Enseignement Supérieur in Lyon (2006-2009, 24 days of training and conferences).

Volunteering experience

- Host for the association *L'Ouvre Porte*, Grenoble (2021).
- *Notre dame des sans abris* (shelter for the homeless), Lyon, France (2008).
- Braille Library for blind children, Paris 11 (2006-2007).
- Tutoring for the children of the neighbourhood of Gerland (all levels), Lyon (2002-2003).

Languages

French (mother tongue), English (fluent), Spanish (conversational), Japanese, Brazilian, German (solid bases, but unpracticed).

Teaching and popularization

Teaching

What I tought for the past 16 years, which is listed below, covers all levels from first year of undergraduate (L1) til second year of masters (M2), mainly for students with a major in Mathematics-Computer science, but also with an uninterrupted involvement in MEEF Masters until 2019 (preparation to the CAPES competitive exam to become a Mathematics teacher). I've been teaching more or less 192 hours a year since I became assistant professor in 2010, except the years where I've had a semester of sabbatical (in 2013, 2015, 2019, 2022, 2023). I have taught in 4 places: ENS Lyon, Sorbonne University, AIMS Senegal and University of Grenoble.

L1	Exercise Sessions (ES) + oral examination in Linear Algebra. Course of Analysis (1st year Calculus: sequences, limits, continuity, etc). Course of Mathematical Language. Courses "Mathematical Tools" and "Introduction to Dynamical Systems" for biologists.
L2	Course & ES of Calculus (Sequences and Series of Functions, Integer Series, Fourier Series). ES: Introduction to Topology and Differential Calculus. ES: Number Series, Generalized Integrals. ES: Introduction to Group Theory. Oral examinations in classes préparatoires MP, Lycée du Parc.
L3	Course of Topology of Metric Spaces. ES in « Differential calculus 2 » (ODE and submanifolds). ES in complex analysis.
M1 Research	Course in Differential geometry, AIMS Sénégal. ES in Differential geometry. ES on the analytic study of ODEs.
M1 and M2 MEEF	Course-ES Preparation to the written exam of CAPES. Preparation to the oral exam of CAPES. Preparation to the oral exam of agrégation.

Supervision

Supervision of **internships** of introduction to research in **L3** (Morse Theory, may-june 2016; Isometric embeddings, may-june 2025) and **M1** (Poincaré homology sphere, april-july 2017).

Scientific popularization

In addition to the following list, I have given several talks dedicated to undergrads and highschool students.

2024	Translation from spanish to french for the Mathematical Calendar, and from french to spanish for Images des Maths / Paísajes matemáticos.
2022	"Speed-meeting" at the CIRM with highschool students around the professions involving maths.
2019	Participation to the film *Man Ray et les équations shakespeariennes* by Quentin Lazzarotto, produced by IHP.
2014-2017	Coorganization of the « Aromaths » seminar for undergraduate students.
2010-2013	Participation to the "fête de la science" in primary schools with Paris 6 et 7.
2007	Animation of a stand for the Fête de la science, Lyon.
	Scientific animation in primary schools (C.I.E.S project), Grand Lyon.
2006	Reception of general audience and scholar groups in the temporary exhibition *Pourquoi les Mathématiques ?* at the Museum de Lyon.
	Co-animation of a mathematical workshop for highschool teachers, National Congress of the APMEP, Clermont-Ferrand.

Analysis Situs Project

From 2013 to 2017, I was deeply involved in the collective project gathering around twenty mathematicians (among which E. Ghys, D. Gaboriau, M. Boileau, N. Bergeron, F. Béguin, B. Deroin...) which led to the creation of the website http://analysis-situs.math.cnrs.fr/ about the works of Poincaré in *Analysis Situs* (algebraic topology). There, one can find the original texts (commented), an original course and many examples presented in filmed lectures and 3D animations. I personally worked mainly on the *fifth complement* and its homology sphere or *variété dodécaédrique de Poincaré*.

Research activity

Research interests

In general : Dynamics, topology and geometry : one dimensional dynamics, foliation theory, h-principle of Gromov (also, symplectic and contact topology).

More specifically : codimension-1 foliations on closed manifolds, interval and circle diffeomorphisms, group actions on the interval and the circle.

Publications

Publications in peer-reviewed journals

[1] (with A. Navas and an appendix of T. Virot) The space of C^{1+ac} actions of $\mathbb{Z}^d$ on a one-dimensional manifold is path-connected, *Advances in Math.*, Vol. 478, oct. 2025. Preprint arxiv:2306.17731.

[2] (with A. Navas)All, most, some? On diffeomorphisms of the interval that are distorted and/or conjugate to powers of themselves. *Proc. Edin. Math. Soc.*, online april 2025. Preprint arxiv:2405.11366 (2024).

[3] (with A. Navas) On residues and conjugacies for germs of 1-D parabolic diffeomorphisms in finite regularity. *Journal of the Institute of Mathematics of Jussieu*. Preprint arxiv:2302.13182 (2023).

[4] (with A. Navas) On the failure of linearization for germs of C^1 hyperbolic vector fields in dimension 1. *J. of Dynamics and differential equations*, Vol. 37, pp. 1787–1806. Preprint arxiv:2212.13646 (2022).

[5] Smooth times of a flow in dimension one, *Annales scientifiques de l'ENS*, Fasc. 1, Tome 57 (2024), Preprint arxiv:1905.07582 (2019).

[6] (with A. Navas) Mather invariant, distortion, and conjugates for diffeomorphisms of the interval, *Journal of Functional Analysis*, Volume 281, Issue 9 (2021). Preprint: arxiv:1912.09305 (2019).

[7] On the connectedness of the space of codimension one foliations on a closed 3-manifold, *Invent. Math.* 204 (2016), no. 2, 605–670. Preprint: arXiv:1404.5884 (2014).

[8] (with C. Bonatti) Connectedness of the space of smooth $\mathbb{Z}^n$ actions on the interval, *Ergodic Theory and Dynam. Systems* 36 (2016), no. 7, 2076–2106. Preprint: arXiv:1209.1601 (2012).

[9] A connectedness result for commuting diffeomorphisms of the interval, *Ergodic Theory and Dynam. Systems* 31 (2011), no. 4, 1183–1191. Preprint : arXiv:0912.1464 (2009).

[10] On the centralizer of diffeomorphisms of the half-line, *Comment. Math. Helv.* 86 (2011), no. 2, 415–435. Preprint : arXiv:0811.1173v1 (2008).

Collective works

[11] Website *Analysis Situs* : http://analysis-situs.math.cnrs.fr/.

Proceedings

[12] On the connected components of the space of codimension one foliations on a closed 3-manifold, *Topology Symposium* (Japanese) 57 (2010), p. 29-42.

[13] Centralisateurs des difféomorphismes de la demi-droite, *Actes du Séminaire TSG* (Grenoble). Volume 27. Année 2008-2009, 117–129.

Memoirs

[14] Flots et actions de groupes abéliens libres en dimension 1 (HDR, 95 pages).

[15] Sur deux questions connexes de connexité concernant les feuilletages et leurs holonomies (PhD Thesis, 128 pages), `http://tel.archives-ouvertes.fr/tel-00436304/fr/`.

Prepublications

[16] (with E. Militon) Almost reducibility, distortion and local perfection for diffeomorphisms of one-manifolds. arxiv:2507.13770 (2025).

[17] (with A. Navas) (Arc-)connectedness for the space of $\mathbb{Z}^d$ actions by C^2 diffeomorphisms on 1-manifolds. arxiv:2103.06940 (2021).

Communications

- **Talks in international conferences and seminars** (**2010** : *School on Periodic Approximation in Ergodic Theory* (Pisa, Italie), *Topology symposium* (Okayama, Japon) ; **2011** : *Workshop on holomorphic foliations* (Porto), *Workshop on Global Dynamics Beyond Uniform Hyperbolicity* (CIRM, Luminy), *New Trends in Symplectic and Contact Geometry* (Castro Urdiales, Espagne), *Todai forum, Geometry and dynamics* (Lyon) ; **2012** : *Workshop on Symplectic Geometry, Contact Geometry and Interactions VI* (Madrid), *Foliations 2012* (Lodz, Pologne)) ; **2013** : Conférence *Geometry and foliations 2013*, Tokyo, Japon, *B*Γ *School*, (Tokyo) ; **2014** : *British Mathematical Colloquium*, Geometry Workshop (Londres, Royaume-Uni), Conférence *Foliations 2014*, Madrid, Espagne) ; **2017** : *Rencontre ANR microlocal*, Grenoble, *Workshop on symplectic foliations* (Lyon) ; **2018** : *Congrès de la SMF* (Lille), *MATRIX program: Dynamics, Foliations and Geometry in dimension 3* (Creswick, Australie) ; **2019** : *BIRS-CMO Workshop : Ordered Groups and Rigidity in Dynamics and Topology* (Oaxaca, Mexique), *Journées de dynamique 2019* (Paris) ; **2022** : *CIRM workshop diffeomorphism groups and mapping class groups, CMM school: Combinatorial and geometrical approaches on dynamics* ; **2023** : Workshop of thematic trimester on surface dynamics, Mittag-Leffler; Workshop *Orderings and groups*, ICMAT, Madrid ; **2024** : IFUMI's birthday and IRL inauguration (Montevideo, Uruguay) ; Conference *Foliations and diffeomorphism groups* (CIRM) ; **2025** : Algebra and Geometry Seminar in La Sapienza (Rome), Dynamical seminar of Santiago de Chile (PUC), *Conference for F. Laudenbach's 80th birthday* (à venir).
- **Talks in seminars and colloquium** (**2010** : Paris 6, 7, 13, Clermont-Ferrand, Strasbourg, Tokyo, Bordeaux, Dijon ; **2011** : Bruxelles, Fribourg (Suisse), Nice ; **2012** : Lille, Munich, Orléans, Utrecht (Pays-Bas), Toulouse, Lyon, Cambridge, Quimper ; **2013** : Avignon ; **2014** : Marseille ; **2015** : Rio de Janeiro, Niteroi (Brésil) ; **2016** : Grenoble, Paris ; **2017** : Strasbourg, Lyon, Clermont-Ferrand ; **2018** : Amiens ; **2019** : Rennes, Bordeaux, Grenoble, Orsay, **2020** : séminaire francophone (en ligne)) ; **2022** : Avignon, Grenoble, Jussieu, Santiago ; **2023**: Jussieu, Santiago, Montpellier ; **2024**: Clermont-Ferrand, Quimper ; **2025** : Montpellier (rencontre ANR GALS), Bordeaux, Nantes, Lyon, Paris (à venir).

Short presentation of early works

My work lies at the interface between differential topology and dynamical systems. My earliest results concern codimension-one **foliations** on closed manifolds, and I have been focussing since then on questions of **one-dimensional dynamics** related (originally) to their holonomy representations.

During my PhD, I worked on the classification of smooth codimension-one foliations on 3-manifolds, following works of Thurston and Eliashberg [Th73, El89]. Roughly, such a foliation is a partition of the manifold by [1] surfaces which, locally, pile up nicely like parallel affine planes. The goal was to answer the following question: *if two foliations have homotopic tangent plane fields, can we connect them by a path of foliations, that is a path of* integrable *plane fields?* Another way of phrasing this is: is the space of the foliations that lie in a given homotopy class of plane fields path-connected?

The main result of my thesis, presented and extended in [7] and inspired by techniques of Thurston, Eliashberg and Larcanché [Th73, El89, La07], is that **this question reduces to the purely dynamical question of the path-connectedness of the space of smooth orientation-preserving actions of $\mathbb{Z}^2$ on the closed interval, or, more concretely, of the space of pairs of commuting smooth diffeomorphisms of the interval**. C. Bonatti and I have shown in [BEB16] that **this space is connected** (and thus so is the aforementioned space of foliations). Path-connectedness, however, remains out of reach for now.

The difficulty comes from the existence of (germs of) smooth (C^∞) diffeomorphisms of the semi-open interval $[0, 1)$ with a very complicated centralizer. I constructed the first examples of this in my thesis (cf. [10]), and such examples can give rise to pairs of commuting diffeomorphisms that are difficult to deform. In a few words, if a smooth diffeomorphism of $[0, 1)$ has no other fixed point than 0, it is the time-1 map of a C^1 vector field (according to Szekeres [Sz58]) which is smooth except possibly at 0 (phenomenon highlighted by Sergeraert in [Se77]). Furthermore, its centralizer (among smooth diffeomorphisms) reduces to the smooth times of the flow of this vector field (according to Kopell [Ko68]). In the aforementioned article [10], I showed that **the set of smooth times can contain a Cantor set (and thus be dense) without being all of** $\mathbb{R}$. I then showed in [12] that **one can force it to contain** 1 **and any given Liouville number**, using the works of Sergeraert and techniques of deformation by conjugation "à la Anosov-Katok". Those are also used to construct smooth diffeomorphisms of the circle with a prescribed Liouville rotation number that are not C^1-conjugate to the corresponding rotation,

[1] injectively immersed

though they are topologically conjugate to it according to Denjoy's theorem. The key property of Liouville numbers that make these statements work is that they are "very well approximated" by rational numbers, unlike *diophantine numbers* (irrational numbers that are not Liouville).

Ten years later, I finally managed to prove that, on the other hand, **if the set of smooth times of a vector field of the interval contains** 1 **and a *diophantine* number, then it is equal to all of** $\mathbb{R}$, drawing my inspiration from the works of Herman and Yoccoz [He79, Yo84] on the linearization of circle diffeomorphisms (once more). The two sides of this dichotomy Liouville-Diophantine were gathered in the end in [5].

Shortly afterwards, I initiated a fruitful collaboration with Andrés Navas (6 articles submitted in 4 years, 3 accepted). One of our interests is the question of the *path*-connectedness of the space of actions of $\mathbb{Z}^2$ on the closed interval in lower regularity. Indeed, this question and the techniques at hand to tackle it are extremely sensitive to the regularity one considers. Navas proved the path-connectedness in class C^1 some ten years ago (cf. [Na14]) partly by answering the following question:

Under which condition can a diffeomorphism of the closed interval (or a whole group of them) be conjugated abitrarily close to the identity?

He proved that in regularity C^1, for abelian (and even nilpotent) finitely generated groups, the only obstruction is the presence of hyperbolic fixed points. In higher regularity (from C^{1+bv} on), he brought to light a new obstruction, the *asymptotic variation*, defined by:

$$\mathrm{var}_\infty(f) = \lim_{n\to\infty} \frac{1}{n}\mathrm{var}(\log Df^n).$$

In the long article [6], we uncover the **relation between the asymptotic variation and a more classical obstruction, *the Mather Invariant***, that "quantifies" the non-embeddability of a C^2-diffeomorphism without interior fixed point in a C^1 flow (concretely, the Mather Invariant M_f of such a diffeomorphism f is a class of circle diffeomorphisms up to pre- and post-composition by rotations). More precisely, for such a diffeomorphism f, we proved that:

$$|\mathrm{var}_\infty(f) - \mathrm{var}(\log DM_f)| \leq |\log Df(0)| + |\log Df(1)|.$$

This relation helped us transfer some properties from one object to the other (invariance under C^1 conjugacy and some continuity of the asymptotic variation, possibility to define the Mather invariant from regularity C^{1+bv} on...).

Using these tools, we obtained in [17] a first connectedness result for C^2 actions. New ideas enabled us last year to obtain in [1] the **path-connectedness in regularity C^{1+ac} for actions of $\mathbb{Z}^d$ on the closed interval and the circle, and the connectedness in C^2 regularity on the interval**. We also prove in the same article, using works of Voronin, the **path-connectedness in real-analytic regularity in the case of the interval**.

One of the difficulties we came across in [17] and [1] has to do with hyperbolic fixed points. In regularity C^2 and higher, one can apply to them the Sternberg-Yoccoz linearization theorem. But the latter fails in C^{1+ac} regularity. We examined this phenomenon closely in [4], where **we construct continuous families of C^{1+ac} germs hyperbolic at** 0**, with the same derivative there but not conjugated one to the other** (the conjugacy being considered in class bi-Libschitz, C^1 and C^{1+ac}). We then studied in [3] **conjugacy classes in the parabolic case**, starting from the works of Takens and Yoccoz, to highlight some **rigidity phenomenon related to *residues***, the simplest example being the **invariance of the Schwarzian derivative of C^3 parabolic germs under C^2 parabolic conjugacy**, while it is not invariant under C^1 conjugacy. This work is partially motivated by the will to understand *distortion elements* in groups of (germs of) diffeomorphisms in various regularities.

Let us recall this notion from geometric group theory. In a given group G, an element g is said to be *distorted* (in Gromov's sense) if there exists a finite family $S \subset G$ such that g belongs to the subgroup generated by S and the word-length of g^n (with respect to S) is sublinear in n (it is not hard to see, by concatenation, that it is at most linear in general). A typical example is that of an element g conjugated to its square (or any power of itself) by some element f. In this case, one can show that, for the family $S = \{f, g, f^{-1}, g^{-1}\}$, the word-length of g^n is of the order of $\log(n)$. The case where G is a group of homeomorphisms or diffeomorphisms has already drawn the attention of many researchers (let us cite in particular important works by Avila and Militon).

Recently, A. Navas and I have studied the cases of the group of germs of diffeomorphisms of $\mathbb{R}$ at 0 and the group of diffeomorphisms of the closed interval (in some given regularity). In both cases, it is not hard to construct distorted elements (conjugated to their square for example) and to see that, for an element to be distorted, all its fixed points need to be parabolic. But apart from that, very little is known. Concerning C^1 diffeomorphisms of the circle, in particular, one can naively wonder:

Is every C^1 diffeomorphism of $[0,1]$ whose fixed points are parabolic distorted in $\mathrm{Diff}^1[0,1]$*?*

More modestly, one can wonder whether distortion is a generic property among these diffeomorphisms. We recently proved in [2] that **the diffeomorphisms that are C^1 conjugated to their square (and thus distorted) are dense among those whose fixed points are parabolic**, but that, on the other hand, **generically, a diffeomorphism of the latter type is not conjugated to any of its powers** (which does not mean that distortion is not generic!). Our strategy, based on works by Bonatti, Crovisier, Vago and Wilkinson, involves in a crucial way the Mather invariant alluded to earlier and already very present in [6, 1, 17].

In higher regularity, new obstructions to being distorted (other than the parabolicity of the fixed points) appear, such as the non-vanishing of the asymptotic variation introduced above, itself related to the non-triviality of the Mather invariant for diffeomorphisms without interior fixed point. As a matter of fact, this allowed Navas to exhibit a C^∞ diffeomorphism of the interval that is distorted in the group of C^1 diffeomorphisms and undistorted in that of C^2 diffeomorphisms. Using this new obstruction, we show in [2] that **for every $r \geq 2$, for C^r diffeomorphisms without hyperbolic fixed point, NOT being C^r-distorted is generic**. Here again, we would like to know whether the asymptotic variation is the only obstruction, or at least if among diffeomorphisms with vanishing asymptotic variation, those that are distorted are generic. For now, what we know is that **among the C^2 diffeomorphisms with vanishing asymptotic variation, those that are C^2-conjugated to their square (and thus C^2-distorted) are dense**, but this does no longer hold in higher regularity.

[AK70] D. V. Anosov et A. B. Katok — *New examples in smooth ergodic theory. Ergodic diffeomorphisms.* Trans. Moscow Math. Soc. **23** (1970), 1–35.

[BEB16] (avec C. Bonatti) Connectedness of the space of smooth $\mathbb{Z}^n$ actions on the interval, *Ergodic Theory and Dynam. Systems* 36 (2016), no. 7, 2076–2106. Preprint: arXiv:1209.1601 (2012).

[El89] Y. Eliashberg — *Classification of overtwisted contact structures on* 3*-manifolds.* Invent. Math. **98** (1989), 623–637.

[He79] M. R. Herman — *Sur la conjugaison différentiable des difféomorphismes du cercle à des rotations.* Inst. Hautes études Sci. Publ. Math. **49** (1979), 5–233.

[Ko68] N. Kopell — *Commuting diffeomorphisms.* In *Global Analysis*, Proc. Sympos. Pure Math. XIV, Amer. Math. Soc. (1968), 165–184.

[La07] A. Larcanché — *Topologie locale des espaces de feuilletages en surfaces des variétés fermées de dimension 3.* Comment. Math. Helvetici **82** (2007), 385–411.

[Mi] E. Militon. Notes de cours.

[Na14] A. Navas — *Sur les rapprochements par conjugaison en dimension 1 et classe C^1.* Compositio Math. **150** (2014), 1183-1195.

[Na18] A. Navas — *On conjugates and the asymptotic distortion of* 1*-dimensional C^{1+bv} diffeomorphisms.* Int. Math. Res. Not. 2023, No. 1, 372–405.

[Se77] F. Sergeraert — *Feuilletages et difféomorphismes infiniment tangents à l'identité.* Invent. Math. **39** (1977), 253–275.

[Sz58] G. Szekeres — *Regular iteration of real and complex functions.* Acta Math. **100** (1958), 203–258.

[Th73] W. P. Thurston — *A local construction of foliations for three-manifolds.* Differential topology (Proc. Sympos. Pure Math. **27**, Stanford Univ., California, 1973), Amer. Math. Soc. (1975), 315–319.

[Vo81] S. M. Voronin — *Analytic classification of germs of conformal mappings $(C, 0) \to (C, 0)$ with identity linear part.* Funct. Anal. Appl. 15, 1–13 (1981); translation from Funkts. Anal. Prilozh. 15, No. 1, 1–17 (1981).

[Wo69] J. Wood — *Foliations on 3-manifolds.* Ann. of Math. **89** (1969), 336–358.

[Yo84] J-C. Yoccoz — *Conjugaison différentiable des difféomorphismes du cercle dont le nombre de rotation vérifie une condition diophantienne.* Ann. Sci. école Norm. Sup. (4) **17** (1984), 333–359.

[Yo95] J-C. Yoccoz — *Centralisateurs et conjugaison différentiable des difféomorphismes du cercle.* Astérisque **231** (1995), 89-242.

Collective responsibilities

Research

- Member of the **CNU** (French National Council of Universities, 2023-...);
- Member of the **scientific board** of the Institut Fourier (2021-...);
- Member of the **experts group** Section 25 (pure maths) at UPMC (2011-2015);
- Representative of the research institute IMJ-PRG at the **Scientific council** of the mathematics department of UPMC (2013-2017);
- Member of **hiring committees** for assistant professor positions (Lyon, Paris 7, Paris 13, Clermont-Ferrand...);
- Member of the **scientific committee** of the conferences *Foliations 2016* (Bedlewo, Pologne) and *Aussois 2019* (Géométrie et dynamique, Aussois, France);
- Member of the **organization committee** of the IHP trimester *Topologie symplectique, de contact, et intéractions* (spring 2021), the conference *Giroux60* (summer 2022), the Aussois Winter Schools 2022-2024 and the conference *Foliations and Diffeomorphism groups 2024* in CIRM;
- **Coorganizer of the topology seminar** of the Institut Fourier (2021-...);
- **Referee and jury member** for PhD theses;
- **Referee** for mathematical journals.

Administration and pedagogy

- **Member of the council** of the Mathematics (teaching) department of the University of Grenoble (2023-...);
- **Coordinator OFIP** (Orientation, Formation and Professional Insertion) for the Maths department of Grenoble University (2022-...);
- **Coordinator LLU** (Link Highschool-University) for the Maths department (2022-...);
- Member of the jury of the SMF Junior competition (2022);
- Member of the **gender parity committee** of IMJ-PRG (2016-2017);
- **Coorganizer of the *Aromaths* seminar** for undergraduate students of the mathematics department of UPMC (2014-2017);
- **Coorganizer of the PhD students seminar** of IMJ (2010-2012);
- **Representative** of the maths department at the **GHET** (planning harmonization group) (2011-2014).