

Curriculum Vitae

Fabrizio Bianchi

Personal information

Date of birth	December 31st, 1989
Nationality	Italian
Address	Université de Lille, Laboratoire Paul Painlevé Cité Scientifique - Bâtiment M2 F-59655 Villeneuve d'Ascq Cedex Bureau M2-302
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Expertise and research interests

| Holomorphic dynamics, ergodic theory and dynamical systems, complex analysis and geometry

Current position

01/2019 - | **Chargé de recherche CNRS** (tenured full time researcher), CNRS, France.

Past employments

2018 - 2019	Marie Skłodowska-Curie Fellow , Department of Mathematics, Imperial College London, UK.
2016 - 2018	Chapman Fellow Department of Mathematics, Imperial College London, UK.
	Supervisor/Mentor: Dr Davoud Cheraghi

Education

2013–2016	PhD student, Institut de Mathématiques de Toulouse and Università di Pisa Thesis <i>Motions of Julia sets and dynamical stability in several complex variables</i> Defended on September 9th, 2016 Supervisors: Prof. François Berteloot and Prof. Marco Abate
2011–2013	Second level Diploma (<i>Licenza</i>), Mathematics, Scuola Normale Superiore di Pisa MSc in Mathematics, Università di Pisa Thesis <i>Geodesics for meromorphic connections on Riemann surfaces and dynamics of homogeneous vector fields in several complex variables</i> Defended on July 19th, 2013 Supervisor: Prof. Marco Abate
2008–2011	First level Diploma of Science Class (Mathematics), Scuola Normale Superiore di Pisa Bachelor of Science in Mathematics, Università di Pisa

Talks in conferences and workshops

2022	<i>Complex Geometry, Dynamical Systems and Foliation Theory</i> , CIRM Marseille, October 17-21
Invitations	Final conference ANR FATOU, Orléans, June 13-17 <i>Adventurous Berkeley Complex Dynamics</i> , main conference in the MSRI semester <i>Complex Dynamics: from special families to natural generalizations in one and several variables</i> May 2-6 (MSRI)
2021	<i>On geometric complexity of Julia sets - III</i> , September 27-October 1 (Bedlewo, Poland) <i>Index Theory and Complex Geometry: Conference on Complex Analysis and Geometry</i> , August 16-20 (organized by IMM, Singapore - online)

- 2020 | *On geometric complexity of Julia sets - II*, August 24-27 (organized by IMPAN, Poland - online)
First Virtual Conference on Complex Analysis and Complex Geometry, May 4 - June 14 (online)
Complex Dynamics, CIRM Marseille, January 27-31
- 2019 | *Dynamics and geometry*, Singapore, November 20
Dynamics, Equations and Applications, Krakow, September 16-20
 XX Congresso Unione Matematica Italiana, Complex Geometry section, September 2-7
Topics in Complex Dynamics 2019, Barcelona, March 25-29
 LMS Scheme 3 Network in Holomorphic Dynamics meeting, Nottingham, January 14
- 2018 | Journée de dynamique complexe, Nice, December 18
 Final conference ANR LAMBDA, Toulouse, May 28-June 1
 First ANR FATOU meeting, Amiens, April 16-18 (mini course 3h)
Varietà reali e complesse: geometria, topologia e analisi armonica, Pisa, February 1-3
- 2017 | *Holomorphic Dynamics*, RIMS, Kyoto, December 11-15
Topics in Complex Dynamics 2017, Barcelona, October 2-6
 LMS Scheme 3 Network in Holomorphic Dynamics meeting, Imperial College, London, March 22
Aspects of dynamical systems, Imperial College, London, March 16-18
- 2016 | *Progressi Recenti in Geometria Reale e Complessa - X*, held in Levico, October 8-11
 Workshop *Residues and dynamics*, held in Pisa, September 12-13
 Workshop *Dynamical systems in logic, complex analysis and ergodic theory*, Pisa, February 8-9
- 2015 | *Topics in Complex Dynamics 2015*, Barcelona, November 23-27
 Rencontre ANR LAMBDA, held in Amiens, September 28-30
Complex Analysis and Geometry - XXII, held in Levico, May 31 - June 5
Aspects métriques et dynamiques en analyse complexe, held in Lille, May 18-23
Komplex Analysis Weeklong School and Workshop (KAWA6), held in Pisa, March 23-29
Postgraduate Conference in Complex Dynamics, held in London, March 11-13
- 2014 | *Progressi Recenti in Geometria Reale e Complessa - IX*, held in Levico, October 20-23

Talks in research seminars

- 2022 | Paris Sorbonne (January)
- 2021 | Tashkent, Uzbekistan (November), Bordeaux (November)
- 2020 | Lille (February), Toulouse (November)
- 2019 | Amiens (October), RIMS Kyoto (December)
- 2018 | NUS Singapore (February), Nice (April), Warsaw (June), Lille (September)
- 2017 | Lille (February), Paris 6 (February), Orléans (April), Rennes (April), Queen Mary, London (September), Dijon (October), Warwick (October), Tokyo (December)
- 2016 | Imperial College, London (January), Open University, Milton Keynes (January), Dijon (June), Amiens (October), Liverpool (November)
- 2015 | Warsaw (IMPAN, September), Toulouse (November)

Visits (at least a week, conferences excluded)

- 2021 | Orléans (June), Tashkent and Bukhara, Uzbekistan (November)
- 2019 | Milan (April), London (April), Orléans (May), Trento (June), Cologne (July), Lahore, Pakistan (October), Singapore (November), Kyoto (December)
- 2018 | Singapore (February and December), Warsaw (June), Milan (August), Lille (October)
- 2017 | Paris, Paris 6 and Ecole Polytechnique (March), Dijon (July and October), Orléans (September), Kyoto and Tokyo (December)
- 2016 | London, Imperial College (January), Amiens (October)
- 2015 | Warsaw, IMPAN (September)
- 2012 | Paris, Ecole Normale Supérieure (October-December)

Publications

(with Yūsuke Okuyama) *Degeneration of quadratic polynomial endomorphisms to a Hénon map*
Indiana University Mathematics Journal, Volume 69, 2549-2570 (2020)

Misiurewicz parameters and dynamical stability for polynomial-like maps of large topological degree
Mathematische Annalen, Volume 373, 901–928 (2019)

Parabolic implosion for endomorphisms of \mathbb{C}^2
Journal of the European Mathematical Society, Volume 21, 3709-3737 (2019)

(with François Berteloot) *Perturbations d'exemples de Lattès et dimension de Hausdorff du lieu de bifurcation*
Journal de Mathématiques Pures et Appliquées, Volume 116, 161–173 (2018)

(with François Berteloot and Christophe Dupont) *Dynamical stability and Lyapunov exponents for holomorphic endomorphisms of \mathbb{P}^k*
Annales Scientifiques de l'ENS, Volume 51, Issue 1, 215–262 (2018)

(with Johan Taflin) *Bifurcations in the elementary Desboves family*
Proceedings of the AMS, Volume 145, Issue 10, 4337–4343 (2017)

(with Marco Abate) *A Poincaré-Bendixson theorem for meromorphic connections on Riemann surfaces*
Mathematische Zeitschrift, Volume 282, Issue 1, 247–272 (2016).

Preprints

(with Samuele Mongodi) *On minimal kernels and Levi currents on weakly complete complex manifolds*, 2021
to appear on the **Proceedings of the AMS**

(with Tien-Cuong Dinh) *Existence and properties of equilibrium states of holomorphic endomorphisms of \mathbb{P}^k* , 2020

(with Matthieu Astorg) *Higher bifurcations for polynomial skew products*
to appear on the **Journal of Modern Dynamics**

(with Matthieu Astorg) *Hyperbolicity and bifurcations in families of polynomial skew products*, 2018

Survey

(with François Berteloot) *Stability and bifurcations in projective holomorphic dynamics*
Dynamical systems, **Banach Center Publications**, 115, Polish Acad. Sci. Inst. Math., Warsaw, 37–71, 2018

Editorial work

Editor of the Springer Lecture Notes Volume *Quantitative aspects in complex analysis, geometry, and dynamics* (in preparation). This volume is the collection of the expanded lectures notes of the courses in the ACQUA21 school that I organized in Lille in 2021.

Research Fellowships/Grants/Awards

2021	Coordinator of the Axis <i>Holomorphic Dynamics</i> of the three-year ANR-DFG funded project QuaSiDy (Quantization, Singularities, and Holomorphic Dynamics, PIs Viet-Anh Nguyen and George Marinescu), 2022-2024, €562.000 Member of the four-year ANR funded project PADAWAN (Parabolic dynamics, bifurcations, and wandering domains, PI Matthieu Astorg), 2022-2025, €184.000 INDAM funding for the workshop "New trends in holomorphic dynamics", 2022, total budget €25000
2020	<i>Porteur</i> for the "CNRS Ecole Thematiques" project, for the organization of ACQUA20/21 (various grants, total budget of the event €18000)
2019	3 months CNRS "Poste Rouge" Invitation for Yusuke Okuyama (with Gabriel Vigny) 3-week JSPS Invitational Fellowships for Research in Japan (Short-term), host: Yusuke Okuyama PI of the two-year I-SITE ULNE grant NEPECAD (New perspectives in Complex Analytic Dynamics), Lille (2020-2021), €118.800 1-week Research in Pairs (with Samuele Mongodi), CIRM-FBK Trento (Italy) Projet Internationalisation BQR (with Viet-Anh Nguyen), Université de Lille, for cooperation with the Institute of Mathematics of Cologne (€2500) Projet Exploratoire Premier Soutien (PEPS) <i>Jeune chercheuse, jeune chercheur</i> , CNRS, €3500
2018	Two-year Marie Skłodowska-Curie Individual Fellowship
2017	Imperial College European Partner Fund (with Davoud Cheraghi), for collaboration with the French community in holomorphic dynamics, 2017-2019 (£5,000) Imperial College Research Imperial College Research Impulse Awards (3x) (total £3000)
2016	Two-year Chapman Fellowship, Department of Mathematics, Imperial College
2014	Mobility grant <i>Bando Vinci</i> from the <i>Université Franco-Italienne</i> for joint PhD degrees between Italy and France (€4500)
2013	LabEx CIMI full PhD scholarship (2013-2016), Université Paul Sabatier, Toulouse
2013	Grant from SNS to attend the <i>Advanced school and workshop in Real and Complex Dynamics</i> , ICTP Trieste, May 20-31, 2013 (€750)
2012	Grant from SNS, fully funded visit to the Ecole Normale Supérieure, Paris, Oct-Dec 2012
2008	Winner of the competition for Full Scholarship for a 5-year term of studies (2008-2013) in the Science Class of Scuola Normale Superiore di Pisa (SNS). Around 10 students admitted for Mathematics every year Winner of the national competition for the Italian INdAM scholarship 2008 ($3 \times €4,000 = €12,000$). Rank: 1st out of 40 passed. Declined (incompatible with the scholarship from SNS)

Service and responsibilities

2020-	<i>Membre du Conseil</i> , Laboratoire Paul Painlevé
2020-	<i>Membre du Conseil</i> , Fédération de Recherche Mathématique des Hauts-de-France
2022	Member of the hiring committee for a <i>Maître de Conférences</i> (lecturer, tenured position), Université de Lille
2020	Member of the hiring committee for a <i>Maître de Conférences</i> (lecturer, tenured position), Université de Amiens
2021-	Referee for the Polish National Science Centre (evaluation of grant applications) Member of the experts panel for the evaluation of Marie Curie fellowships
2022	Member of the experts panel for the evaluation of Marie Curie COFUND fellowships, Salamanca
Referee for	<i>Inventiones Mathematicae</i> , <i>Annali della Scuola Normale Superiore di Pisa</i> , <i>Proceedings of the AMS</i> , <i>Journal of the European Mathematical Society</i> , <i>Computational methods and function theory</i> , <i>Fundamenta mathematicae</i> , <i>Discrete and continuous dynamical system</i> , <i>Journal of Dynamical and Control Systems</i>
Expert opinion for	<i>Journal of the American Mathematical Society</i> , <i>Journal of the European Mathematical Society</i> , <i>Journal of Functional Analysis</i> , <i>Fundamenta mathematicae</i>
Reviewer for	<i>Mathematical Reviews</i> and <i>zbMATH - Zentralblatt MATH</i>

Organization of events

- 2022 | *New trends in holomorphic dynamics*, Cortona, September 2022
with Leandro Arosio, Jasmin Raissy, Matteo Ruggiero
- 2022 | *Introductory workshop of the MSRI semester Complex Dynamics: from special families to natural generalizations in one and several variables*
MSRI, February 2022
<https://www.msri.org/workshops/971>
with Anna Miriam Benini, Mikhail Hlushchanka, and Dylan Thurston
- 2021 | *ACQUA21 - Quantitative aspects in complex analysis, geometry and dynamics*
1-week school + workshop, Lille, October 25 - 29, 2021
<https://www.mathconf.org/acqua2021/>
with George Marinescu, Volker Mayer, Viet-Anh Nguyen, and Gabriel Vigny
porteur du projet
- 2021 | *Journée du Laboratoire Paul Painlevé*, Villeneuve d'Ascq, July 1
<https://www.mathconf.org/jlpp2020>
with Sylvain Arguillère and Baba Thiam
- 2019 | *Journée d'analyse complexe*, Lille, October 9
<https://www.mathconf.org/jac2019>
with Viet-Anh Nguyen

Organization of regular seminars

- 2021- | Monthly seminar "Dynamique Holomorphe"
IHP, Paris
with Matthieu Astorg and Nguyen Bac Dang
- 2020- | Weekly seminar "Analyse Complexe et Equations differentielles"
Laboratoire Paul Painlevé, Université de Lille
with Viet-Anh Nguyen and Changgui Zhang

Supervision

- Q. Luong | MSc thesis (Imperial College, 2018). Quintin is now PhD student in Queen Mary, London
- M. Tabaro | MSc summer project (Imperial 2018). Matteo is now PhD student in Imperial College
- W. Lim | MSc summer project (Imperial 2018). Willie is now PhD student in Stony Brook, US
- M. Brevard | MSc thesis (ENS Rennes and Paris 13, 2020). Maxence is now PhD student in Toulouse, under my joint supervision
- W. Akram | MSc thesis (Lahore, 2021). Waseem is now attending a Master in Italy to further prepare for PhD in Europe
- K.Rakhimov | Following a PhD in Pisa, Karim is postdoc under my supervision for 2 years, since 2020, with a fellowship funded by my I-SITE grant. Starting summer 2022, he will be associate professor in Tashkent National University.

Teaching and tutoring

- 2021-2022 | International Mathematics Master - COMSATS, Lahore, Pakistan
(ICTP – CUI Visiting Scholars Program for Training and Research in Mathematics)
- *Differential geometry*, MSc course (with Marco Abate, Eleonora di Nezza, and Francesca Tovena)

2020-2021	Université de Lille - <i>Ergodic theory, theory of currents, and complex dynamics</i> , “M2 Recherche” course International Mathematics Master - COMSATS, Lahore, Pakistan - <i>Mathematical analysis (exercise classes, online)</i> - <i>Functional analysis (exercise classes, online)</i>
2019-2020	International Mathematics Master - COMSATS, Lahore, Pakistan - <i>Differential geometry</i> , MSc course (with Marco Abate)
2017-2018	Imperial College London - <i>Geometric Complex Analysis</i> , 3rd-4th-MSc course - <i>Tutor</i> for six first, second and third year students
2016-2017	Imperial College London - <i>Introduction to Riemann surfaces and conformal dynamics</i> , 3rd-4th-MSc course - <i>Tutor</i> for five first and second year students
2015-2016	Université Paul Sabatier, Toulouse - <i>Mathématiques 1 - Analyse 1</i> , L1 (first year) Sciences fondamentales et appliquées, course and exercises.
2014-2015	Université Paul Sabatier, Toulouse - <i>Mathématiques</i> , L1 (first year) Sciences Naturelles, course and exercises; - <i>Option Mathématiques</i> , L1 (first year) Sciences Naturelles, exercises-only course.
2014	<i>Modern Mathematics International Summer School for Students</i> , held in Lyon, August 20-29, 2014. Tutor and teaching assistant for the classes: - <i>Tropical geometry and enumeration of curves</i> - <i>Ultraproducts, asymptotics, and model theory</i>

Participation in Conferences (excluding online events)

2021	<i>On geometric complexity of Julia sets - III</i> , Bedlewo, Poland, September 27-October 1 CIME School <i>Modern dynamics</i> , Cetraro, Italy, August 2-6
2020	<i>Complex dynamics</i> , CIRM Marseille, January 27-31
2019	<i>Bifurcation and stability in complex dynamics</i> , Kyoto, December 9-13 <i>Geometry and dynamics</i> , Singapore, November 20 Rencontre ANR FATOU, Orleans, November 13-15 <i>Dynamics, Equations and Applications</i> , Krakow, September 16-20 XX Congresso Unione Matematica Italiana, September 2-7 <i>Complex Analysis and Geometry - XXII</i> , held in Levico, May 31 - June 5 <i>Analytic Low-Dimensional Dynamics: a celebration of Misha Lyubich's 60th birthday</i> , Toronto, May 27-31 Rencontre ANR FATOU, Ecole Polytechnique, May 15-17 <i>Topics in Complex Dynamics 2019</i> , Barcelona, March 25-29 LMS Scheme 3 Network in Holomorphic Dynamics meeting, Nottingham, January 14
2018	<i>Journée de Dynamique Complexe</i> , Nice, December 18 Rencontre ANR FATOU, Dijon, November 14-16 <i>Journées Complexes du Nord</i> , Lille, October 22-23 <i>Complex Analysis and Geometry in Pisa</i> , Pisa, October 5-6 CIME School <i>Complex non-Kähler geometry</i> , Cetraro, July 9-13 <i>New Developments in Complex Analysis and Function Theory</i> , Heraklion, July 2-6 <i>Analysis aspects of dynamics</i> , Imperial College London, 16-18 May Final conference ANR LAMBDA, Toulouse, May 28-June 1 First ANR FATOU meeting, Amiens, April 16-18 <i>Varietà reali e complesse: geometria, topologia e analisi armonica</i> , Pisa, February 1-3

- 2017 | *Holomorphic Dynamics*, RIMS, Kyoto, December 11-15
Topics in Complex Dynamics 2017, Barcelona, October 2-6
LMS Scheme 3 Network in Holomorphic Dynamics meeting, Imperial College, London, March 22
Aspects of dynamical systems, Imperial College, London, March 16-18
- 2016 | *Progressi Recenti in Geometria Reale e Complessa - X*, held in Levico, October 8-11
Workshop *Residues and dynamics*, held in Pisa, September 12-13, 2016
Parameter Problems in Analytic Dynamics, held in London, June 27- July 1
North-American Workshop in Holomorphic Dynamics, held in Cancun, May 27 - June 4
Komplex Analysis Weeklong School and Workshop (KAWA7), held in Toulouse-Albi, March 7-12
Workshop on Dynamical systems in logic, complex analysis and ergodic theory, Pisa, February 8-9
- 2015 | *Topics in Complex Dynamics 2015*, Barcelona, November 23-27
Rencontre ANR LAMBDA, held in Amiens, September 28-30
Topics in Analysis and Holomorphic Dynamics, held in Warsaw, September 15-18
Complex Analysis and Geometry - XXII, held in Levico, May 31 - June 5
Aspects métriques et dynamiques en analyse complexe, held in Lille, May 18-23
Komplex Analysis Weeklong School and Workshop (KAWA6), held in Pisa, March 23-29
Postgraduate Conference in Complex Dynamics, held in London, March 11-13
Rencontre ANR LAMBDA, held in Toulouse, January 29-30
- 2014 | *Progressi Recenti in Geometria Reale e Complessa - IX*, held in Levico, October 20-23
Rencontre inaugurale ANR LAMBDA, held in Marne la Vallée, April 14-16
Komplex Analysis Winter School and Workshop (KAWA-Nordan), held at CIRM, Marseille, March 24-29
- 2013 | Workshop *Parabolic renormalization*, held in Pisa, June 3 - June 7
Advanced School and Workshop in Real and Complex Dynamics, held in Trieste (Italy), May 20-31
Workshop *Varietà reali e complesse: geometria, topologia e analisi armonica*, held in Pisa, February 28 - March 3
- 2012 | INdAM Conference *New Trends in Holomorphic Dynamics*, held in Cortona (Italy), September 3-7