CURRICULUM VITÆ

MARTÍN SOMBRA

> Frames indicate activities totally or partially prepared or done in the period 2016-2020

1 GENERAL INFORMATION

1.1 Personal information

Born on 7 January 1970 in Ezpeleta, Argentina. Married, two children

1.2 Professional situation

2009– ICREA research professor and *profesor asociado* at Universitat de Barcelona (UB)

Address:	Departament de Matemàtiques i Informàtica, Universitat de Barcelona, Gran Via 585, 08007 Barcelona, Spain
E-mail / phone:	sombra@ub.edu / +34934021608
URL:	http://www.maia.ub.edu/~sombra/

1.3 Other affiliations

Member of the Barcelona Graduate School of Mathematics (BGSMath)

Member of the UB Institut de Matemàtiques (IMUB)

Member of the UB research group in algebraic, linear and differential geometry (GALATEA)

Member of the Spanish network in symbolic computation, computer algebra and applications (Red EACA)

Member of the Spanish network in algebraic geometry and singularities (Red GAS)

1.4 Research fields

Algebraic and arithmetic geometry, combinatorics, incidence geometry, computer algebra, complexity of algorithms

1.5 Education

1993–1998 PhD in Mathematics at U. Buenos Aires (UBA), Argentina. Thesis: *Estimates for Hilbert's Nullstellensatz* (advisor J. Heintz)

1988–1993 *Licenciado* in Mathematics at U. La Plata (UNLP), Argentina

1.6 Fellowships and awards

2010 Milstein scholarship (Ministry of Science, Argentina) for a one month research stay at UBA, Argentina

2008 Best paper award of the Journal of Complexity, for the paper *Factoring bivariate sparse (lacunary) polynomials* by M. Avendaño, T. Krick and M. Sombra

2007 Visiting scholarship (AGAUR, Generalitat de Catalunya) for a four months research stay at UBA, Argentina

2004 Ramon y Cajal scholarship (Ministry of Education and Science) for a five years research postition at UB

2000 Marie Curie fellowship (European Commission) for a two years postdoctoral stay at the Institut de Mathématiques de Jussieu (IMJ) in Paris, France

1999 Postdoctoral fellowship for a one year postdoctoral stay at the Institute for Advanced Study (IAS) in Princeton, USA

1998 Postdoctoral fellowship for a four months postdoctoral stay at the Mathematical Sciences Research Institute (MSRI) in Berkeley, USA

1992 Undergraduate fellowship (Fundación Antorchas, Argentina) for a two years support of undergraduate studies at UNLP

1.7 Previous positions

2008–2009	Professeur des universités	U. Bordeaux 1, France
2004–2008	Ramón y Cajal researcher	UB
2003–2004	Maître de conférences	U. Lyon 1, France
2001–2003	Postdoctoral fellow	IMJ, Paris, France
1999–2000	Postdoctoral member	IAS, Princeton, USA
8–12/1998	Postdoctoral fellow	MSRI, Berkeley, USA
1996–2001	Instructor[1]	UNLP, Argentina
1994–1996	Assistant[1]	UBA, Argentina
9–12/1993	Assistant[1]	UNLP, Argentina
1992–1993	Antorchas undergraduate fellow	UNLP, Argentina
1991–1993	Assistant	UNLP, Argentina

1.8 Visiting positions

3/2014	*Senior fellow* of the program "Algebraic techniques for combinatorial and computational geometry" at the Institute for Pure and Applied Mathematics (IPAM) in Los Angeles, USA (one month)
11/2010	*Visiting professor* at UBA, Argentina (one month)
10/2007–2/2008	*Visiting professor* at UBA, Argentina (four months)
1/2006	*General member* of the program "Rational points and integral points on higher dimensional varieties" at MSRI in Berkeley, USA (one month)
9–12/2005	*Visiting Professor* at UBA, Argentina (four months)
5/1997	*Visiting Professor* at U. Alcalá (one month)

1.9 Other research stays (last ten years, selected)

3/2019	U. Rochester, USA (two weeks)
4/2018	Instituto de Ciencias Matemáticas (ICMAT), Madrid (two weeks)
1/2018	IMJ, Paris, France (two weeks)
2/2016	UBA, Buenos Aires, Argentina (two weeks)

1/2015	U. Católica de Chile (PUC), Santiago, and U. Católica de Valparaíso (PUCV), Chile (two weeks)
10/2014	ICMAT, Madrid (three weeks)
6–7/2014	IMJ, Paris, France (one month)
9–10/2013	U. Bordeaux, France (two weeks)
9/2012	Kyoto U., Japan (two weeks)
4/2012	IMJ, Paris, France (two weeks)
9/2011	IMJ, Paris, France (two weeks)
5/2011	ICMAT, Madrid (two weeks)

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[1] Full–time teaching and research positions obtained through public competitions

In the period 2016-2020 I also made one-week research stays at the following institutions:

2020	U. Caen, France
2019	ICMAT (Madrid, twice), U. Regensburg (Germany)
2018	ICMAT (Madrid, twice), U. Bordeaux (France), U. Regensburg (Germany, twice), Chalmers and U. Gothenburg (Sweden)
2017	ICMAT (Madrid), U. Caen (France, twice), PUCV (Valparaíso, Chile)
2016	U. Regensburg (Germany), U. Bordeaux (France)

2 PUBLICATIONS

The full texts are available from `http://www.maia.ub.edu/~sombra/publications.html` and `http://arxiv.org/`. The citations are available from my profiles at Google Scholar and MathSciNet. Authors are listed in alphabetical order, as it is the norm for publications in mathematics.

2.1 Research monograph

1. J. I. Burgos Gil, P. Philippon, M. Sombra, *Arithmetic geometry of toric varieties. Metrics, measures and heights*, Astérisque, vol. 360, Société Mathématique de France, 2014, vi + 222 pages, ISBN 978-2-85629-783-4.

2.2 Research papers

2. M. Sombra and A. Yger, *Bounds for multivariate residues and for the polynomials in the elimination theorem*, to appear in Moscow Mathematical Journal, 41 pages.
3. A. M. Botero, J. I. Burgos Gil, and M. Sombra, *Convex analysis on polyhedral spaces*, to appear in Mathematische Zeitschrift, 38 pages.
4. L. Busé, C. D'Andrea, M. Sombra, and M. Weimann, *The geometry of the flex locus of a hypersurface*, Pacific Journal of Mathematics **304** (2020) 419-437.
5. J. I. Burgos Gil, P. Philippon, J. Rivera-Letelier, and M. Sombra, *The distribution of Galois orbits of points of small height in toric varieties*, American Journal of Mathematics **141** (2019) 309-381.
6. F. Amoroso and M. Sombra, *Factorization of bivariate sparse polynomials*, Acta Arithmetica **191** (2019) 361-381.
7. C. Martínez and M. Sombra, *An arithmetic Bernštein-Kušnirenko inequality*, Mathematische Zeitschrift **291** (2019) 1211-1244.
8. C. D'Andrea, A. Ostafe, I. E. Shparlinski, and M. Sombra, *Reduction modulo primes of systems of polynomial equations and algebraic dynamical systems*, Transactions of the American Mathematical Society **371** (2019) 1169-1198.
9. J. I. Burgos Gil and M. Sombra, *Appendix* to the paper by W. Gubler, Ph. Jell, K. Künnemann, and F. Martin, *Continuity of plurisubharmonic envelopes in non-Archimedean geometry and test ideals*, Annales de l'Institut Fourier (Grenoble) **69** (2019) 2331-2376.
10. M.-C. Chang, C. D'Andrea, A. Ostafe, I. E. Shparlinski, and M. Sombra, *Orbits of polynomial dynamical systems modulo primes*, Proceedings of the American Mathematical Society **146** (2018) 2015-2025.
11. C. D'Andrea, M. Narváez-Clauss, and M. Sombra, *Quantitative equidistribution of Galois orbits of small points in the N-dimensional torus*, Algebra & Number Theory **11** (2017) 1627-1655.
12. F. Amoroso, M. Sombra, and U. Zannier, *Unlikely intersections and multiple roots of sparse polynomials*, Mathematische Zeitschrift **287** (2017) 1065-1081.
13. J. I. Burgos Gil, P. Philippon, and M. Sombra, *Height of varieties over finitely generated fields*, Kyoto Journal of Mathematics **56** (2016) 13-32.

14. J.I. Burgos Gil, A. Moriwaki, P. Philippon, and M. Sombra, *Arithmetic positivity on toric varieties*, Journal of Algebraic Geometry **25** (2016) 201-272.

15. S. Basu and M. Sombra, *Polynomial partitioning on varieties of codimension two and point-hypersurface incidences in four dimensions*, Discrete & Computational Geometry **55** (2016) 158-184.

16. C. D'Andrea and M. Sombra, *A Poisson formula for the sparse resultant*, Proceedings of the London Mathematical Society **11** (2015) 932-964.

17. F. Amoroso, L. Leroux, and M. Sombra, *Overdetermined systems of sparse polynomial equations*, Foundations of Computational Mathematics **15** (2015) 53-87.

18. J. I. Burgos Gil, P. Philippon, and M. Sombra, *Successive minima of toric height functions*, Annales de l'Institut Fourier (Grenoble) **65** (2015) 2145-2197.

19. J. I. Burgos Gil, P. Philippon, and M. Sombra, *Height of toric varieties, entropy and integration over polytopes*, in F. Nielsen and F. Barbaresco (eds.), *Geometric Science of Information*, Lecture Notes in Computer Science **9389** (2015) 286-295.

20. C. D'Andrea, A. Galligo, and M. Sombra, *Quantitative equidistribution for the solutions of a system of sparse polynomial equations*, American Journal of Mathematics **136** (2014) 1543-1579.

21. C. D'Andrea, T. Krick, and M. Sombra, *Height of varieties in multiprojective spaces and arithmetic Nullstellensätze*, Annales Scientifiques de l'École Normale Supérieure **46** (2013) 549-627.

22. J. I. Burgos Gil and M. Sombra, *When do the recession cones of a polyhedral complex form a fan?*, Discrete & Computational Geometry **46** (2011) 789-798.

23. D'Andrea and M. Sombra, *The Newton polygon of a rational plane curve*, Mathematics of Computer Science **4** (2010) 3-24.

24. J.I. Burgos Gil, P. Philippon, and M. Sombra, *Hauteur des sous-schémas toriques et dualité de Legendre-Fenchel*, Comptes Rendus de l'Académie des Sciences de Paris **347** (2009) 589-594.

25. D'Andrea and M. Sombra, *Rational parametrizations, intersection theory and Newton polytopes*, in I. Emiris, F. Sottile, and T. Theobald (eds.), *Non–linear computational geometry*, IMA Volumes in Mathematics and its Applications **151** (2009) 35-50, Springer–Verlag.

26. P. Philippon and M. Sombra, *A refinement of the Bernštein-Kušnirenko estimate*, Advances in Mathematics **218** (2008) 1370-1418.

27. P. Philippon and M. Sombra, *Minimum essentiel et degrés d'obstruction des translatés de sous–tores*, Acta Arithmetica **133** (2008) 1-24.

28. P. Philippon and M. Sombra, *Quelques aspects diophantiens des variétés toriques*, in H.P. Schlickewei and R. Tichy (eds.), *Diophantine Approximation: Festschrift for Wolfgang Schmidt*, Developments in Mathematics **16** (2008) 295-338, Springer–Verlag.

29. P. Philippon and M. Sombra, *Hauteur normalisée des variétés toriques projectives*, Journal of the Institute of Mathematics of Jussieu **7** (2008) 327-373.

30. P. Philippon and M. Sombra, *Une nouvelle majoration pour le nombre de solutions d'un système d'équations polynomiales*, Comptes Rendus de l'Académie des Sciences de Paris **345** (2007) 335-340.

31. M. Avendaño, T. Krick, and M. Sombra, *Factoring bivariate sparse (lacunary) polynomials*, Journal of Complexity **23** (2007) 193-216.

32. P. Philippon and M. Sombra, *Géométrie diophantienne et variétés toriques*, Comptes Rendus de l'Académie des Sciences de Paris **340** (2005) 507-512.

33. D'Andrea and M. Sombra, *The Cayley-Menger determinant is irreducible for $n \geq 3$*, Sibirskij Matematicheskij Zhurnal **46** (2005) 90-97. English translation: Siberian Mathematical Journal **46** (2005) 71-76.

34. M. Sombra, *Minimums successifs des variétés toriques projectives*, Journal für die reine und angewandte Mathematik (Crelle's Journal) **586** (2005) 207-233.

35. M. Sombra, *The height of the mixed sparse resultant*, American Journal of Mathematics **126** (2004) 1253-1260.

36. G. Jeronimo, T. Krick, J. Sabia, and M. Sombra, *The computational complexity of the Chow form*, Foundations of Computational Mathematics **4** (2004) 41-117.

37. A.J. Di Scala and M. Sombra, *Instrinsic palindromes*, Fibonnacci Quarterly Journal **42** (2004) 76-81.

38. T. Krick, L. M. Pardo, and M. Sombra, *Sharp estimates for the arithmetic Nullstellensatz*, Duke Mathematical Journal **109** (2001) 521-598.

39. K. Hägele, J. E. Morais, L. M. Pardo, and M. Sombra, *On the intrinsic complexity of the arithmetic Nullstellensatz*, Journal of Pure and Applied Algebra **146** (2000) 103-183.

40. M. Sombra, *A sparse effective Nullstellensatz*, Advances in Applied Mathematics **22** (1999) 271-295.

41. M. Sombra, *Bounds for the Hilbert function of polynomial ideals and for the degrees in the Nullstellensatz*, Journal of Pure and Applied Algebra **117** & **118** (1997) 565-599.

The paper [31] received the *2007 Best Paper Award* of the Journal of Complexity.

The sequences of k-palindromic numbers introduced in the paper [37] were included by N. Sloane in his *Encyclopedia of Integer Sequences* (`https://oeis.org/`).

The paper [38] received the *Featured Review MR 2002h:11060* of the American Mathematical Society.

2.3 Papers submitted for publication

42. C. D'Andrea, G. Jeronimo, and M. Sombra, *The Canny-Emiris conjecture for the sparse resultant*, e-print arXiv:2004.14622, submitted to Foundations of Computational Mathematics, currently in revision after a first favourable return from the journal, 48 pages.

2.4 Expository texts

43. C. D'Andrea and M. Sombra, *Sobre curvas paramétricas y polígonos de Newton*, Gaceta de la Real Sociedad Matemática Española **11** (2008) 317-336.

44. C. D'Andrea and M. Sombra, *Sobre corbes paramètriques i polígons de Newton,* Butlletí de la Societat Catalana de Matemàtiques **23** (2008) 201-219.

2.5   Publications in refereed conference proceedings

The following are extended abstracts of some of the preceding publications.

45. C. D'Andrea, A. Ostafe, I. E. Shparlinski, and M. Sombra, *Hilbert's Nullstellensatz and polynomial dynamical systems*, in *Proceedings EACA 2014*, Barcelona, 2014.

46. F. Amoroso, L. Leroux, and M. Sombra, *Overdetermined systems of lacunary equations*, in *Diophantische Approximationen*, Mathematisches Forschungsinstitut Oberwolfach Report No. 22/2012 (2012) 33-34.

47. F. Amoroso, L. Leroux, and M. Sombra, *Overdetermined systems of lacunary equations*, in *Proceedings EACA 2012*, U. Alcalá.

48. C. D'Andrea, T. Krick, and M. Sombra, *Height of varieties in multiprojective spaces and arithmetic Nullstellensätze*, in *Proceedings EACA 2010*, U. Santiago de Compostela.

49. M. Sombra, *An arithmetic Bernstein-Kushnirenko inequality*, in *Proceedings EACA 2002*, ACM SIGSAM Bulletin **37** (2003) 16-27.

50. T. Krick, L.M. Pardo, and M. Sombra, *Arithmetic Nullstellensatz,* in *Proceedings WAIT 2001*, Anales JAIIO **30**, SADIO, Buenos Aires.

51. G. Jerónimo, T. Krick, J. Sabia, and M. Sombra, *Chow forms of algebraic varieties*, in *Proceedings WAIT 2001*, Anales JAIIO **30**, SADIO, Buenos Aires.

52. M. Sombra, *Arithmetic Nullstellensätze,* in *Proceedings EACA 1999*, U. La Laguna.

53. K. Hägele, J.E. Morais, L.M. Pardo, and M. Sombra, *On the intrinsic complexity of the arithmetic Nullstellensatz*, in *Proceedings TERA'97*, Trabajos de Matemática **38/97** Serie B, U. Córdoba, Argentina.

54. M. Sombra, *A sparse effective Nullstellensatz,* in *Proceedings TERA'97*, Trabajos de Matemática **38/97** Serie B, U. Córdoba, Argentina.

2.6   Thesis

55. *Estimaciones para el teorema de ceros de Hilbert*, PhD thesis UBA, viii+125 pages, 1998.

56. *Fórmulas de traza en la teoría de funciones L*, Licenciatura thesis UNLP, 49 pages, 1993.

2.7   Edition of journals and conference proceedings

57. A. Cohen, W. Dahmen, H. Munthe-Kaas, M. Sombra, and A. Szanto (eds.), *Special issue on the occasion of the FoCM 2017 conference*, Foundations of Computational Mathematics 19 (2019) 963-1190.

58. J. Elias, J. Fernández Sánchez, and M. Sombra (eds.), *Encuentros de álgebra computacional y aplicaciones (EACA 2014)*, Barcelona, 2014, 178 pages, ISBN 978-84-697-0651-0.

3 TALKS

3.1 Advanced courses at conferences and research schools

11-12/2017   *La distribution des orbites de Galois des points algébriques*, CIMPA research school "Géométrie complexe et applications", Ziguinchor, Senegal (8 hs)

3/2016   *Arithmetic geometry of toric varieties*, Rencontre ANR Gardio/Okounkov, Paris, France (4.5 hs, joint with J. I. Burgos and P. Philippon)

1/2016   *Arithmetic intersection theory on toric varieties*, CIMPA-ICTP research school "Toric methods in geometry, arithmetic and dynamics", Santiago, Chile (6 hs)

6-7/2015   *Arithmetic geometry of toric varieties*, Sino-french research institute on arithmetic geometry, Beijing, China (4.5 hs, joint with J. I. Burgos and P. Philippon)

1/2015   *Arithmetic geometry of toric varieties*, Workshop on geometry and differential varieties, Santiago, Chile (4 hs).

12/2014   *Arithmetic geometry of toric varieties*, XX Coloquio latinoamericano de álgebra, Lima, Perú (4 hs)

3.2 Conferences (last ten years)

All listed talks were invited, except those explicitly marked as "contributed". In conferences with parallel sessions, the corresponding talks are marked as either "session" or "plenary".

7/2021   Mathematical congress of the Americas (MCA 2021), Buenos Aires, Argentina (session talk)

6/2021   Effective methods in algebraic geometry (MEGA 2021), Tromso, Norway (session talk)

9/2019   Workshop "Toric geometry", Mathematisches Forschungsinstitut Oberwolfach (MFO), Germany (participation by invitation)

8/2019   Workshop "Complexity of numerical computation", Berlin, Germany

6/2019   BGSMath María de Maeztu unit of excellence closing workshop, UB

9/2018   ARCADES Doctoral School II and ESR Days, UB

9/2018   Conference "Diophantine approximation and transcendence" at Centre International de Rencontres Mathématiques (CIRM), Luminy, France

12/2017   RSME-UMA congress, Buenos Aires, Argentina (plenary talk)

7/2017   Foundations of computational mathematics (FoCM 2017), Barcelona (session talk)

6/2017   MEGA 2017, Nice, France (plenary talk)

9/2016   Conference "Arakelov geometry: Archimedean and non-Archimedean aspects", Regensburg, Germany

6–7/2016   Workshop "Geometric and combinatorial methods in number theory", Iaşi, Romania

1/2015	GEOMAP coordination meeting, Sitges
12/2014	FoCM 2014, Montevideo, Uruguay (session talk)
11/2014	Journée diophantienne en l'honneur de Patrice Philippon, Caen, France
9/2014	Intercity seminar in Arakelov geometry, Roma, Italy
6–7/2014	XXVèmes Rencontres arithmétiques, Île de Tatihou, France
5/2014	Workshop "Polynomials over finite fields: functional and algebraic properties", Centre de Recerca Matemática (CRM), Bellaterra
5/2014	Conference "Hauteurs, modularité et transcendance", CIRM, Luminy, France
3/2014	Workshop "Tools from algebraic geometry", IPAM, Los Angeles, USA
3/2014	Workshop "Combinatorial geometry problems at the algebraic interface", IPAM, Los Angeles, USA
9/2013	Conference "Thue 150", Bordeaux, France
6/2013	MEGA 2013, Frankfurt, Germany (refereed contributed session talk)
10/2012	ERC research period on Diophantine geometry, Pisa, Italy
9/2012	Paris-Barcelona-Kyoto seminar on Arakelov geometry, Kyoto, Japan (two talks)
8/2012	IV Latin american congress of mathematicians (CLAM 2012), Córdoba, Argentina (two session talks)
6/2012	Encuentro de álgebra computacional y aplicaciones (EACA 2012), Alcalá de Henares (refereed contributed session talk)
7/2011	Sino-french summer institute in arithmetic geometry, Tianjin, China
7/2011	FoCM 2011, Budapest, Hungary (session talk)
6/2011	Conference "Toric geometry and applications", Leuven, Belgium
2/2011	Congreso de la Real Sociedad Matemática Española (RSME), Ávila (session talk)

3.3 Colloquia and seminars (last ten years)

2/2020	Séminaire de théorie des nombres, U. Caen, France
12/2019	Oberseminar über Arakelov-Theorie, U. Regensburg, Germany
3/2019	Algebra and number theory seminar, U. Rochester, USA
1/2019	Seminario de teoría de números, U. Autónoma de Madrid (UAM)
11/2018	Complex analysis seminar, Chalmers and U. Gothenburg
10/2018	Oberseminar über Arakelov-Theorie, U. Regensburg, Germany
9/2018	Seminari de geometria algebraica (SGA), UB and U. Politècnica de Catalunya (UPC)
4/2018	Seminario de teoría de números, UAM
2/2018	Seminari d'anàlisi de Barcelona, UB and U. Autònoma de Barcelona (UAB)
1/2018	Groupe d'étude sur les problèmes diophantiens (GEPbD), IMJ, Paris, France
12/2017	Seminario de aritmética y geometría, U. Católica de Valparaíso (PUCV), Chile
6/2017	Seminari tropical, UAB (two sessions)
12/2016	Colloquium of the department of mathematics, UNLP, La Plata, Argentina
12/2016	Seminario de ecuaciones polinomiales, UBA, Argentina

11/2015	Seminaire de géométrie ergodique, École Polytechnique, Palaiseau, France
11/2015	Oberseminar über Arakelov-Theorie, U. Regensburg, Germany
4–7/2015	Study group on Berkovich spaces, UB (four sessions)
3/2015	Number theory seminar, ETH Zürich, Switzerland
1/2015	PUC mathematics colloquium, U. Católica de Chile (PUC), Santiago, Chile
10/2014	SGA, UB-UPC
6/2014	GEPbD, IMJ, Paris, France
10/2013	Seminaire de géométrie, U. Bordeaux, France
9/2013	Seminario de análisis, PUC, Santiago, Chile
9/2013	Seminario de teoría de números, UBA, Argentina
6–7/2013	Study group on Berkovich spaces, UB (four sessions)
5/2013	Colloquium of the department of mathematics, Politecnico di Torino, Italy
5/2013	GEPbD, IMJ, Paris, France
3/2013	SGA, UB-UPC
1/2013	Complex analysis seminar, Chalmers and U. Gothenburg, Sweden
10/2012	Study group on Berkovich spaces, UB
8/2012	Seminario de aritmética y geometría, PUCV, Chile
7/2012	Seminario de análisis, PUC, Santiago, Chile
4/2012	GEPbD, IMJ, Paris, France
11/2011	SGA, UB-UPC
9/2011	GEPbD, IMJ, Paris, France

3.4 Outreach activities

2/2019	Taller for the "International day of women and girls in science" at the Institut d'Estudis Catalans (IEC), Barcelona
11/2016	Talk at Espai Cultural Cèntric, El Prat de Llobregat, for high-school students from four schools, 21a setmana de la ciència, Fundació Catalana per a la Recerca i la Innovació (FCRI)

11/2015	Xerrades-taller de la Facultat de Matemàtiques de l'UB: four talks and computer laboratories for 400 high-school students (1ro and 2do años de bachillerato, opción ciencias) and their teachers, from 26 schools all over Catalonia
11/2014	Talk at Institut Puig Castellar, Santa Coloma de Gramenet, for high-school students from four schools, 19a setmana de la ciència, FCRI
11/2013	Talk at Espai Cultural Centric, El Prat del Llobregat, for high-school students from five schools, 18a setmana de la ciència, FCRI
5/2012	Talk at Escola Garbí, Esplugues de Llobregat, for high-school students and their teachers

4 ORGANIZATION

4.1 Conferences and workshops

2021   *Effective methods in algebraic geometry (MEGA 2021)*, Tromso, Norway, 7–1/6/2021 (member of the advisory board)

2019   *MEGA 2109*, Madrid, 17-21/6/2019 (member of the advisory board)

2017   *CIMPA research school "Géométrie complexe et applications"*, Ziguinchor, Senegal, 20/11–2/12/2017 (member of the scientific committee)

2017   *Foundations of Computational Mathematics (FoCM 2017)*, Barcelona, 10–19/7/2017 (chair of the organizing committee, and member of the workshops and the Stephen Smale prize committees)

2017   *MEGA 2017*, Nice, France, 12-16/6/2017 (member of the advisory board)

2016   *Algebra and Geometry Meeting*, Barcelona, 30/11–2/12/2016 (coorganizer)

2016   *CIMPA-ICTP research school "Toric methods in geometry, arithmetic and dynamics"*, Santiago, Chile, 11/22–1/2016 (co-chair of the organizing committee)

2015   *Algebra and Geometry Meeting*, Barcelona, 2–4/12/2015 (coorganizer)

2015   *GEOMAP coordination meeting*, Sitges, 29–30/1/2015 (coorganizer)

2015   *MEGA 2015*, Trento, Italy, 15–19/6/2015 (member of the advisory board)

2014   *XIV Encuentro de álgebra computacional y aplicaciones (EACA 2014)*, IEC, Barcelona, 18–20/6/2014 (member of the organizing committee)

2013   *MEGA 2013*, Frankfurt, Germany, 3–7/6/2013 (member of the advisory board)

2011   *Tropical geometry workshop*, Centro Internacional de Encuentros Matemáticos (CIEM), Castro Urdiales, 12–16/12/2011 (member of the organizing committee)

2011   *Kyoto-Paris-Barcelona seminar in Arakelov geometry*, Barcelona, 5–9/9/2011 (coorganizer)

2011   *Heights in Diophantine and Arakelov geometry, dynamical systems and computer algebra (Heights 2011)*, Tossa de Mar, 26–30/4/2011 (coorganizer)

2009   *MEGA 2009*, Barcelona, 15–19/6/2009 (member of the organizing committee)

2008   *Workshop on tropical enumerative geometry*, Barcelona, 2–5/9/2008 (coorganizer)

2006   *Algebraic geometry and geometric modelling (AGGM 2006)*, Barcelona, 4–7/9/2006 (coorganizer)

4.2 Colloquia, seminars, and study groups

2015–2018   *IMUB Colloquium 2.0*, UB (coorganizer)

2015   *Study group on Berkovich spaces II*, UB (coorganizer)

2012–2013   *Study group on Berkovich spaces I*, UB (organizer)

2009–2014   *IMUB Colloquium*, UB (organizer)

19/10/2011   *Coloquio del Centenario de la RSME*, UB (organizer)

2008–2009   *Groupe d'étude en géométrie analytique*, U. Bordeaux 1, France (coorganizer)

2006–2008   *SGA*, UB and UPC (coorganizer)

9–12/2000   *Colloquium of the department of mathematics*, UNLP, La Plata, Argentina (organizer)

4.3 Hosting of researchers (last five years)

6–8/2018	J. Rivera-Letelier (U. Rochester, USA), visiting professor at UB (two months)

In addition, in the period 2016-2020 I hosted the following researchers at UB for periods between one and three weeks:

2020	J. I. Burgos Gil (ICMAT, Madrid) and R. Gualdi (U. Regensburg, Germany)
2019	Burgos Gil and Gualdi
2018	Burgos Gil, D. Coronel (PUC, Santiago, Chile), Ch. Favre (École Polytechnique, Palaiseau, France), Gualdi, and S. Herrero (Chalmers and U. Gothemburg, Sweden)
2017	Burgos Gil,A. Di Scala (Politecnico di Torino, Italy), Gualdi, P. Philippon (IMJ, Paris, France), and A. Yger (U. Bordeaux, France)
2016	F. Amoroso (U. Caen), F. Babaee (U. Bristol, UK), A. Chambert-Loir (IMJ, Paris, France), C. Martínez (U. Caen), Philippon, Rivera-Letelier, and M. Weimann (U. Caen, France)

5 FUNDING

5.1 Research grants (last ten years)

2020–2024	*Algebraic, linear and differential geometry: theory and applications*, proyecto de I+D fundamental no orientada (PID2019-104047GB-I00), Ministerio de Ciencia, Innovación y Universidades (MCIUN). PIs C. D'Andrea (UB) and M. Lahoz (UB), 7 researchers and 2 PhD students, amount 86.636 € (researcher)
2018-2019	*Algebra and algebraic geometry*, Suport als grups de recerca (2017 SGR 585), AGAUR, Generalitat de Catalunya. PI R. Miró (UB), 21 researchers, amount 44.800 € (researcher)
2016–2020	*Algebraic, linear and differential varieties, arithmetics and moduli*, proyecto de I+D fundamental no orientada (MTM2015-65361-P), Ministerio de Economía y Competitividad (MINECO). PI I. Mundet (UB), 5 researchers and 2 PhD students, amount 59.895 € (researcher)
2015-2019	*Barcelona Graduate School of Mathematics*, unidad de excelencia Maria de Maetzu (MDM-2014-0445), MINECO. PI M. Noy (UPC), amount 2.000.000 € (researcher and scientific guarantor)
2015-2017	*Computational algebra and arithmetics*, project for scientific and technological research (PICT-2013-0294), Ministerio de Ciencia, Argentina. PI T. Krick (UBA, Buenos Aires, Argentina), 13 researchers, amount 45.000 € (researcher)
2014-2016	*Diophantine geometry and computer algebra*, international project of scientific cooperation (PICS 6381), Centre National de la Recherche Scientifique (CNRS), France. PI's F. Amoroso (U. Caen, France) and M. Sombra, 8 researchers, amount 24.000 € (co-PI)
2014-2016	*Algebra and algebraic geometry*, Suport als grups de recerca (2014 SGR 114), AGAUR, Generalitat de Catalunya. PI R. Miró (UB), 17 researchers, amount 30.000 € (researcher)

2013-2015	*Algebraic, symplectic and arithmetic geometry*, proyecto de I+D fundamental no-orientada (MTM2012-38122-C03-02), MINECO. PI M. Sombra, 4 researchers and 3 PhD students, amount 57.915 € (PI)
2010-2012	*Algebraic and symplectic geometry, Arakelov geometry and applications*, proyecto de I+D fundamental no-orientada (MTM2009-14163-C02-01), Ministerio de Ciencia e Innovación (MCINN). PI's J.I. Burgos Gil (UB) and J.C. Naranjo (UB), 10 researchers and 3 PhD students, amount 163.713 € (researcher)
2009-2011	*Properties of the height of arithmetic varieties*, PICS, CNRS, France. PI's P. Philippon (IMJ, Paris, France) and M. Sombra, 8 researchers, amount 20.000 € (co-PI)

5.2 Conference and travel funding (last ten years)

2017	IMUB and UB Facultat de Matemàtiques travel grant, amount 1.000 €
2017	European Mathematical Society (EMS) support for the conference FoCM 2017, financing the participation of a plenary speaker (PI)
2016-2017	Foundation Compositio Mathematica support for the conference FoCM 2017, amount 5.000 € (PI)
2016-2017	SCM support for the conference FoCM 2017, amount 500 € (PI)
2016-2017	IMUB and UB Facultat de Matemàtiques support for the conference FoCM 2017, amount 4.000 € (PI)
2015-2016	Foundation Compositio Mathematica support for the research school "Toric methods in geometry, arithmetic and dynamics", amount 6.000 € (co-PI)
2014-2016	CIMPA and ICTP support for the research school "Toric methods in geometry, arithmetic and dynamics", amount 24.000 € (CIMPA 12.000 €, ICTP 10.000 €) (co-PI)

2014	IMUB support for the conference EACA 2014, amount 2.000 € (PI)
2011	RSME support for the "Coloquio del Centenario de la RSME", amount 500 € (PI)
2011	MICINN support (program Consolider Ingenio I-MATH) for the "Kyoto-Paris-Barcelona seminar in Arakelov geometry", amount 4.000 € (co-PI)
2011	MICINN support (program Consolider Ingenio I-MATH) for the conference Heights 2011, amount 5.000 € (co-PI)
2010-2011	MICINN support (acción complementaria MTM2010-11727-E) for the conference Heights 2011, amount 4.000 € (PI)
2010-2011	MICINN support (acción complementaria MTM2010-12192-E) for the workshop "Tropical geometry", amount 6.000 € (researcher)

6 TRAINING and TEACHING

6.1 Training of postdoctoral researchers

10/2018–1/2019	Ana Belén de Felipe, *IMUB posdoctoral fellow* at UB. Current position: assistant professor at U. La Laguna
10–12/2018	Roberto Gualdi, *Ferràn Sunyer i Balaguer posdoctoral fellow* at CRM, Bellaterra. Current position: *Humboldt Foundation postdoctoral fellow* at U. Regensburg, Germany

2–8/2011	Rafael von Kanel, *postdoctoral fellow* at UB (joint with J. I. Burgos Gil). Current position: *associate member* at Tsinghua U., China
10/2008–9/2010	Martin Weimann, *Beatriu de Pinós postdoctoral fellow* (AGAUR, Generalitat de Catalunya) at UB (joint with J. I. Burgos Gil) Current position: *maître de conférences* at U. Caen, France

6.2 Supervision of PhD students

10/2014–9/2018	Roberto Gualdi, U. Bordeaux, France (joint with A. Yger). Thesis: *Height of cycles in toric varieties*. Current position: *see above*
9/2013–9/2017	César Martínez, UB and U. Caen, France (joint with F. Amoroso). Thesis: *Two problems in arithmetic geometry. Explicit Manin-Mumford, and arithmetic Bernštein-Kušnirenko*. Current position: *wissenschaftliche mitarbeiter* (research associate) at U. Regensburg, Germany
9/2011–6/2016	Marta Narváez, UB (joint with C. D'Andrea). Thesis: *Quantitative equidistribution of Galois orbits of points of small height on the algebraic torus* (*Premi Extraordinari de Doctorat 2015-2016* of the UB Faculty of Mathematics). Current position: *SEM analyst* at Gauss & Newman, Barcelona

9/2008–3/2011	Louis Leroux, U. Caen, France (joint with F. Amoroso). Thesis: *Algorithmes pour les polynômes lacunaires*. Current position: *high-school professor* at Académie de Caen, France

6.3 Other supervisions

10/2020–	Marta Fernández, *undergraduate student* at UB
9/2020–	Andriana Karuk, *master student* at UB
4–9/2020	Andrés Mebarek, *master student* at UB. Thesis: *Bounds for the height of an algebraic number*
8/2018–9/2019	Sergi Rovira, *master student* at UB. Thesis: *The polynomial method over varieties*. Current position: *PhD student* at U. Pompeu Fabra
7/2019	Joan Hernanz, *undergraduate student* at UPC doing a one month ACER training stay at UB

6/2013–1/2014	Martin Lippert, *master student* at UB. Thesis: *Toric varieties and error-correcting codes.* Current position: *business analyst* at BMW Japan Finance Corporation, Japan
9/2012–9/2013	Gilles Bonnet, *master student* at UB. Subject: *Amoebas of algebraic varieties.* Current position: *postdoctoral fellow* at U. Bochum, Germany
9/2012–7/2013	Albert Rodríguez, *master student* at UB. Thesis: *A Riemann-Roch theorem in tropical geometry.* Current position: *PhD student* at Hokkaido U., Japan
9/2009–10/2011	Alberto Montero, undergraduate student in Computer Science at UB. Project: *Binary BCH codes*
1–6/2009	Alice Le Coz, Caroline Le Harper, and Hector Coudrin, *master students* at U. Bordeaux 1, France. Thesis: *Le problème de Lehmer pour les polynômes à coefficients impaires*
6–7/2007	Pierre Le Boudec, *undergraduate student* at the ENS Lyon doing a two months training stage at UB. Project: *Flexible polyhedra.* Current position: *SNSF professor* at U. Basel, Switzerland

6.4 Courses (last ten years)

2016–2021	*Numerical linear algebra*, master in data science at UB (lectures, 30 hs, five times)

2013–2014	*Toric varieties*, informal graduate course at UB (lectures, 16 hs)
2011–2012	*Algebraic curves*, master in Mathematics at UB (lectures, 30 hs)
	Linear algebra, degree in mathematics at UB (problem sessions, 15 hs)
2010–2016	*Computer algebra*, master in mathematics at UB (lectures, 30 hs, four times)
2010–2011	*Introduction to Arakelov geometry*, graduate course at UBA, Argentina (lectures, 16 hs)
	Criptography, degree in computer science at UB (lectures, problem sessions and computer sessions, 60 hs)

7 PROFESSIONAL SERVICE AND MANAGERIAL ACTIVITIES

7.1 Committees

6/2019	Member of the hiring committee of an IMUB postdoctoral fellowship
2017–	Member of the board of directors of the Society for the Foundations of Computational Mathematics (FoCM Society)
2014–	Member of the IMUB steering committee
2012–	Member of the advisory board of the series of international conferences "Effective Methods in Algebraic Geometry" (MEGA)

5/2012	Member of the hiring committee of a full professor position at U. Rennes 1, France

7.2 Evaluations

3/2021	Member of the review panel of a Collaborative Research Center (CRC Transregio) of the German Research Foundation (DFG), Germany
1/2021	Reviewer *(rapporteur)* of the PhD thesis of Milan Perera at Sorbonne U., France, supervised by S. Boucksom and G. Freixas

7/2020	Member of the jury of a UB master thesis
6/2020	Member of the jury of two UB undergraduate projects
7/2019	Reviewer for the promotion of an assistant professor at the Indian Institute of Science Education and Research (IISER) at Pune, India
9/2018	Member of the jury of the PhD thesis of Roberto Gualdi at U. Bordeaux, France
6/2018	Member of the jury of four UB master thesis
1/2018	Reviewer of an application to an ERC advanced grant, European Commission
9/2017	Member of the jury of the PhD thesis of César Martínez at U. Caen, France
6–7/2017	Reviewer and member of the jury of the PhD thesis of Iago Giné at UAB
4/2017	Reviewer for the promotion of a researcher at the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Argentina
3/2017	Member of the evaluation panel of two BGSMath postdoctoral fellowships
11/2016	Reviewer *(rapporteur)* of the Habilitation of Aurélien Galateau at U. Franche-Compté, France
6/2016	Member of the jury of four UB undergraduate projects
2016–2020	Referee of papers submitted to the journals Inventiones Mathematicae, Journal of Algebraic Geometry, Discrete & Computational Geometry, Journal of Algebra (twice), Journal of Number Theory (three times), Journal of Complexity, and Journal de Théorie des Nombres de Bordeaux (twice)

1/2015	Reviewer of several applications to research grants of the Agence Nationale de la Recherche (ANR), France
2013–2015	Member of the jury of five UB master thesis
2/2013	Member of the evaluation panel of the prize "Evariste Galois", SCM
1/2013	Opponent at the PhD thesis defense of Johannes Lundqvist at U. Stockholm, Sweden
2011	Reviewer of two applications for research grants of UBA, Argentina
2011–2012	Reviewer for the hiring and promotion of three researchers at CONICET, Argentina
2005–2011	Reviewer of three applications for CONICET research grants, Argentina
1998–2012	Referee of papers submitted to the journals Foundations of Computational Mathematics, Journal of the American Mathematical Society, Mathematische Annalen, International Journal of Mathematics, Mathematische Zeitschrift, Rocky Journal of Mathematics, Contemporary Mathematics, Journal of Pure and Applied Algebra, International Journal of Number Theory, Comptes Rendus de l'Académie des sciences – Mathématiques, SIAM Journal of Discrete Mathematics, Journal of Complexity, Computational Complexity and Journal of Symbolic Computation, to a book in the Geometry and Computing series at Springer, and to the conferences Effective Methods in Algebraic Geometry (MEGA) and International Symposium on Symbolic and Algebraic Computation (ISSAC).