

## CURRICULUM VITÆ

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First name: Yann  
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1990 : Student at the 'École Normale Supérieure' in Lyon.  
1993 : 'Agrégation de mathématiques'.  
1996 : Ph-D Thesis, untitled 'Formes linéaires de logarithmes et applications'.  
1997 : Military Service (from 01/11/96 to 31/08/97).  
1997 : 'Maître de conférences' at the University of Strasbourg I since 01/09/97.  
2000 : Habilitation Thesis, untitled 'Approximation diophantienne effective'.  
2001 : Professor at the University of Strasbourg I since 01/09/01.  
2006 : First Class Professor since 01/09/06.  
2008 : Member of the 'Institut universitaire de France'.

## FIELDS OF RESEARCH

My main field of research is Diophantine approximation, a branch of Number Theory. It includes the study and the resolution of Diophantine equations, as well as the theory of transcendental numbers. Since recently, I am also very much interested in questions of equidistribution modulo 1.

## PUBLICATIONS

In November 2004 appeared my monograph ‘Approximation by algebraic numbers’ in the series ‘Cambridge Tracts in Mathematics’.

I have written around one hundred research articles.

### Book.

- [B] Approximation by algebraic numbers. Cambridge Tracts in Mathematics 160. Cambridge University Press, 2004.

### Articles.

- [1] *Dynamique de certaines applications contractantes, linéaires par morceaux, sur  $[0, 1[$* , C. R. Acad. Sci. Série I, t. 317 (1993), 575–578.
- [2] (with M. Mignotte and F. Normandin) *Nombres algébriques de petite mesure et formes linéaires en un logarithme*, C. R. Acad. Sci. Série I, t. 321 (1995), 517–522.
- [3] *Sur la distance entre deux puissances pures*, C. R. Acad. Sci. Série I, t. 322 (1996), 1119–1121.
- [4] *On a property of Pisot numbers and related questions*, Acta Math. Hung. 73 (1996), 33–39.
- [5] (with M. Laurent) *Minoration effective de la distance  $p$ -adique entre puissances de nombres algébriques*, J. Number Theory 61 (1996), 311–342.
- [6] (with K. Györy) *Bounds for the solutions of unit equations*, Acta Arith. 74 (1996), 67–80.
- [7] (with K. Györy) *Bounds for the solutions of Thue-Mahler equations and norm form equations*, Acta Arith. 74 (1996), 273–292.
- [8] *Bounds for the solutions of superelliptic equations*, Compositio Math. 107 (1997), 187–219.
- [9] *On the diophantine equation  $x^2 - 2^m = \pm y^n$* , Proc. Amer. Math. Soc. 125 (1997), 3203–3208.
- [10] *On the diophantine equation  $x^2 - p^m = \pm y^n$* , Acta Arith. 80 (1997), 213–223.
- [11] (with M. Weber) *Examples and counterexamples for Riemann sums*, Indag. Math. 9 (1998), 1–13.
- [12] *On the size of integer solutions of elliptic equations*, Bull. Austral. Math. Soc. 57 (1998), 199–206.

- [13] *Sur le plus grand facteur premier de  $ax^n + by^m$* , C. R. Acad. Sci. Série I, t. 326 (1998), 661–665.
- [14] *Bornes effectives pour les solutions des équations en  $S$ -unités et des équations de Thue-Mahler*, J. Number Theory 71 (1998), 227–244.
- [15] *On the greatest prime factor of  $(ab + 1)(bc + 1)(ca + 1)$* , Acta Arith. 86 (1998), 45–49.
- [16] *Algebraic numbers close to 1 in non-archimedean metrics*, Ramanujan J. 2 (1998), 449–457.
- [17] (with J.-P. Conze) *Calcul de la dynamique de transformations linéaires contractantes mod 1 et arbre de Farey*, Acta Arith. 88 (1999), 201–218.
- [18] (with M. Mignotte) *Sur l'équation diophantienne  $\frac{x^n-1}{x-1} = y^q$ , II*, C. R. Acad. Sci. Série I, t. 328 (1999), 741–744.
- [19] *Linear forms in  $p$ -adic logarithms and the Diophantine equation  $\frac{x^n-1}{x-1} = y^q$* , Math. Proc. Cambridge Phil. Soc. 127 (1999), 373–381.
- [20] (with M. Mignotte, Y. Roy and T. N. Shorey) *The Diophantine equation  $\frac{x^n-1}{x-1} = y^q$  has no solution with  $x$  square*, Math. Proc. Cambridge Phil. Soc. 127 (1999), 353–372.
- [21] (with M. Mignotte) *On integers with identical digits*, Mathematika 46 (1999), 411–417.
- [22] (with M. Mignotte and Y. Roy) *On the Diophantine equation  $\frac{x^n-1}{x-1} = y^q$* , Pacific J. Math. 193 (2000), 257–268.
- [23] (with L. Hajdu) *Lower bounds for the difference  $ax^n - by^m$* , Acta Math. Hung. 87 (2000), 279–286.
- [24] *On the size of integer solutions of elliptic equations, II*, Bull. Greek Math. Soc. 43 (2000), 125–130.
- [25] (with Yu. Bilu) *Démonstration du théorème de Baker-Feldman via les formes linéaires en deux logarithmes*, J. Th. Nombres Bordeaux 12 (2000), 13–23.
- [26] *On the greatest prime factor of  $ax^m + by^n$ , II*, Bull. London Math. Soc. 32 (2000), 673–678.
- [27] (with O. Teulié) *Approximation d'un nombre réel par des nombres algébriques de degré donné*, Acta Arith. 93 (2000), 77–86.
- [28] *Approximation par des nombres algébriques*, J. Number Theory 84 (2000), 15–33.
- [29] (with G. Hanrot) *Un nouveau critère pour l'équation de Catalan*, Mathematika 47 (2000), 63–73.
- [30] *On some exponential Diophantine equations*, Monatsh. Math. 132 (2001), 93–97.
- [31] (with Zhenfu Cao and M. Mignotte) *On simple  $K_4$ -groups*, J. Algebra 241 (2001), 658–668.
- [32] (with T. N. Shorey) *On the number of solutions of the generalized Ramanujan–Nagell equation*, J. reine angew. Math. 539 (2001), 55–74.
- [33] (with G. Hanrot and M. Mignotte) *Sur l'équation diophantienne  $\frac{x^n-1}{x-1} = y^q$ , III*, Proc. London Math. Soc. 84 (2002), 59–78.
- [34] *Sur la suite des nombres de la forme  $q^{n_1} + \dots + q^{n_k}$* , Archiv Math. 79 (2002), 34–38.
- [35] (with T. N. Shorey) *On the Diophantine equation  $\frac{x^m-1}{x-1} = \frac{y^n-1}{y-1}$* , Pacific J. Math. 207 (2002), 61–75.
- [36] *Linear forms in two  $m$ -adic logarithms and applications to Diophantine problems*, Compositio Math. 132 (2002), 137–158.
- [37] *Approximation par des nombres algébriques de degré borné et dimension de Hausdorff*, J. Number Theory 96 (2002), 174–200.

- [38] *Approximation by algebraic integers and Hausdorff dimension*, J. London Math. Soc. 65 (2002), 547–559.
- [39] *Nombres de Liouville et nombres normaux*, C. R. Acad. Sci. Paris, Ser. I 335 (2002), 117–120.
- [40] (with P. Corvaja and U. Zannier) *An upper bound for the G.C.D. of  $a^n - 1$  and  $b^n - 1$* , Math. Z. 243 (2003), 79–84.
- [41] *A note on inhomogeneous Diophantine approximation*, Glasgow Math. J. 45 (2003), 105–110.
- [42] *Sets of exact approximation order by rational numbers*, Math. Ann. 327 (2003), 171–190.
- [43] (with A. Dujella) *On a problem of Diophantus for higher powers*, Math. Proc. Cambridge Phil. Soc. 135 (2003), 1–10.
- [44] *Mahler’s classification of numbers compared with Koksma’s*, Acta Arith. 110 (2003), 89–105.
- [45] (with K. Alniaçik and Y. Avci) *On  $U_m$  numbers with small transcendence measure*, Acta Math. Hungar. 99 (2003), 271–277.
- [46] *Approximation simultanée par des nombres algébriques*, J. Th. Nombres Bordeaux 15 (2003), 665–672.
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- [48] *On the Diophantine equation  $(x^k - 1)(y^k - 1) = (z^k - 1)$* , Indag. Math. 15 (2004), 21–28.
- [49] (with M. Mignotte) *On the distance between roots of an integer polynomial*, Proc. Edinburgh Math. Soc. 47 (2004), 553–556.
- [50] *Intersective sets and Diophantine approximation*, Mich. Math. J. 52 (2004), 667–682.
- [51] (with F. Luca) *A quantitative lower bound for the greatest prime factor of  $(ab+1)(bc+1)(ca+1)$* , Acta Arith. 114 (2004), 275–294.
- [52] *Linear mod one transformations and the distribution of fractional parts  $\{\xi(p/q)^n\}$* , Acta Arith. 114 (2004), 301–311.
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- [54] (with M. Mignotte and S. Siksek) *Sur les nombres de Fibonacci de la forme  $q^k y^p$* , C. R. Acad. Sci. Paris Série I, t. 339 (2004), 327–330.
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- [58] (with M. Amou) *Sur la séparation des racines des polynômes et une question de Sprindžuk*, Ramanujan J. 9 (2005), 25–32.
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- [62] (with M. Laurent) *Exponents of Diophantine approximation and Sturmian continued fractions*, Ann. Inst. Fourier (Grenoble) 55 (2005), 773–804.

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- [64] (with M. M. Dodson and S. Kristensen) *Zero–infinity laws in Diophantine approximation*, Q. J. Math. 56 (2005), 311–320.
- [65] (with F. Luca, M. Mignotte and S. Siksek) *On perfect powers in Lucas sequences*. Int. J. Number Theory 1 (2005), 309–332.
- [66] (with B. Adamczewski) *On the complexity of algebraic numbers II. Continued fractions*, Acta Math. 195 (2005), 1–20.
- [67] (with M. Mignotte and S. Siksek) *Classical and modular approaches to exponential Diophantine equations I. Fibonacci and Lucas perfect powers*, Annals of Math. 163 (2006), 969–1018.
- [68] (with M. Mignotte and S. Siksek) *Classical and Modular Approaches to Exponential Diophantine Equations II. The Lebesgue–Nagell Equation*. Compositio Math. 142 (2006), 31–62.
- [69] (with B. Adamczewski) *On the Littlewood conjecture in simultaneous Diophantine approximation*, J. London Math. Soc. 73 (2006), 355–366.
- [70] (with N. Chevallier) *On simultaneous inhomogeneous Diophantine approximation*, Acta Arith. 123 (2006), 97–123.
- [71] (with F. Luca) *On Pillai’s Diophantine equation*, New York J. Math. 12 (2006), 193–217.
- [72] (with B. Adamczewski) *Real and  $p$ -adic expansions involving symmetric patterns*, Int. Math. Res. Not., Art. ID 75968 (2006), 17 pp.
- [73] (with B. Adamczewski) *Transcendence criteria for pairs of continued fractions*, Glas. Mat. 41 (2006), 223–231.
- [74] (with B. Adamczewski and L. Davison) *Continued fractions and transcendental numbers*, Ann. Inst. Fourier (Grenoble) 56 (2006), 2093–2113.
- [75] (with B. Adamczewski) *On the independence of expansions of algebraic numbers in an integer base*, Bull. London Math. Soc. 39 (2007), 283–289.
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- [77] (with B. Adamczewski) *On the complexity of algebraic numbers I. Expansions in integer bases*, Annals of Math. 165 (2007), 547–565.
- [78] (with B. Adamczewski) *Palindromic continued fractions*, Ann. Inst. Fourier (Grenoble) 57 (2007), 1557–1574.
- [79] (with A. Dujella and M. Mignotte) *On the family of Diophantine triples  $\{k-1, k+1, 16k^3-4k\}$* , Glasgow Math. J. 49 (2007), 333–344.
- [80] (with M. Drmota and B. de Mathan) *On a mixed Littlewood conjecture in Diophantine approximation*, Acta Arith. 128 (2007), 107–124.
- [81] (with F. Luca, M. Mignotte and S. Siksek) *Perfect powers from products of terms in Lucas sequences*, J. reine angew. Math. 611 (2007), 109–129.
- [82] (with B. Adamczewski) *Dynamics for  $\beta$ -shifts and Diophantine approximation*, Ergod. Theory Dyn. Syst. 27 (2007), 1695–1711.
- [83] (with P. Mihăilescu) *On the Nagell–Ljunggren equation  $(x^n - 1)/(x - 1) = y^q$* , Math. Scand. 101 (2007), 177–183.
- [84] (with M. Amou) *On integer polynomials with multiple roots*, Mathematika 54 (2007), 83–92.
- [85] *On the  $b$ -ary expansion of an algebraic number*, Rend. Sem. Mat. Univ. Padova 118 (2007), 217–233.

- [86] *Extensions of the Cugiani–Mahler Theorem*, Ann. Scuola Normale Superiore di Pisa 6 (2007), 477–498.
- [87] (with M. Mignotte and S. Siksek) *A Multi-Frey Approach to a Family of Diophantine Equations*, Canad. J. Math. 60 (2008), 491–519.
- [88] *Diophantine approximation and Cantor sets*, Math. Ann. 341 (2008), 677–684.
- [89] (with M. Mignotte, S. Siksek, M. Stoll and Sz. Tengely) *Integral Points on Hyperelliptic Curves*, Algebra Number Theory 2 (2008), 859–885.
- [90] (with J.-H. Evertse) *On two notions of complexity of algebraic numbers*. Acta Arith. 133 (2008), 221–250.
- [91] (with A. Ivic) *Sums of the error term function in the mean square for  $\zeta(s)$* , Monatsh. Math. 155 (2008), 107–118.
- [92] (with B. Adamczewski and F. Luca) *On the values of a class of analytic functions at algebraic points*, Acta Arith. 135 (2008), 1–18.
- [93] *An explicit lower bound for the block complexity of an algebraic number*, Atti Accad. Naz. Lincei Cl. Sci. Fis. Mat. Natur. Rend. Lincei (9) Mat. Appl. 19 (2008), 229–235.
- [94] *Sets of exact approximation order by rational numbers. II*, Unif. Distr. Th. 3 (2008), 9–20.
- [95] (with M. Drmota and W. Szpankowski) *On the Construction of (Explicit) Khodak’s Code and Its Analysis*, IEEE Trans. Inf. Th. 54 (2008), 5073–5086.
- [96] (with A. Dubickas) *On a problem of Mahler and Szekeres on approximation by roots of integers*, Michigan Math. J. 56 (2008), 703–715.
- [97] (with F. Luca, M. Mignotte and S. Siksek) *Almost Powers in the Lucas Sequence*. J. Théor. Nombres Bordeaux 20 (2008), 555–600.
- [98] (with S. Kristensen) *Diophantine exponents for mildly restricted approximation*. Arkiv f. Math. 47 (2009), 243–266.
- [99] (with J.-H. Evertse) *Approximation of complex algebraic numbers by algebraic numbers of bounded degree*, Ann. Scuola Normale Superiore di Pisa 8 (2009), 333–368.
- [100] (with C. Reutenauer and S. Siksek) *A Sturmian Sequence Related to the Uniqueness Conjecture for Markoff Numbers*, Theor. Comput. Science 410 (2009), 2864–2869.
- [101] *On sequences  $(a_n\xi)_{n\geq 1}$  converging modulo 1*. Proc. Amer. Math. Soc. 137 (2009), 2609–2612.
- [102] (with B. de Mathan) *A mixed problem in Diophantine approximation*. Acta Arith. 139 (2009), 65–77.
- [103] *On the approximation to algebraic numbers by algebraic numbers*. Glas. Mat. 44 (2009), 323–331.
- [104] (with M. Laurent) *On transfer inequalities in Diophantine approximation, II*, Math. Z. To appear.
- [105] (with B. Adamczewski) *Transcendence measures for continued fractions involving repetitive or symmetric patterns*. J. Eur. Math. Soc. To appear.
- [106] (with M. Mignotte) *Polynomial root separation*. Int. J. Number Theory. To appear.
- [107] (with B. Adamczewski) *Mesures de transcendance et aspects quantitatifs de la méthode de Thue–Siegel–Roth–Schmidt*, Proc. London Math. Soc. To appear.
- [108] (with M. Amou) *Expansions in integer bases and exponents of Diophantine approximation*, J. London Math. Soc. To appear.

- [109] *On simultaneous rational approximation to a real number and its integral powers*, Ann. Institut Fourier. To appear.
- [110] (with M. Cipu and M. Mignotte) *On the representation of Fibonacci and Lucas numbers in an integer base*, Ann. Sci. Math. Québec. To appear.
- [111] (with R. Broderick, L. Fishman, D. Kleinbock and B. Weiss) *Schmidt's game, fractals, and numbers normal to no base*, Math. Res. Lett. To appear.
- [112] (with S. Harrap, S. Kristensen and S. Velani) *On shrinking targets for  $\mathbf{Z}^m$  actions on tori*, Mathematika. To appear.

### Preprints.

- [113] (with B. Adamczewski) *Nombres réels de complexité sous-linéaire : mesures d'irrationalité et de transcendance*. Submitted.
- [114] (with C. G. Moreira) *Sets of exact approximation order by rational numbers. III*. Submitted.
- [115] (with N. Moshchevitin) *Badly approximable numbers and Littlewood-type problems*. Submitted.
- [116] *On the irrationality exponent of the Thue–Morse–Mahler number*. Submitted.
- [117] (with A. Haynes and S. Velani) *Metric considerations concerning the mixed Littlewood Conjecture*. Submitted.

### Conference Proceedings (original articles).

- [A1] *On the greatest prime factor of  $\alpha x^n + \beta y^m$* , Proceedings of the Number Theory Conference held in Eger, De Gruyter (1998), 115–122.
- [A2] *On the Diophantine equation  $a \frac{x^n-1}{x-1} = y^q$* , Proceedings of the Number Theory Conference held in Turku, De Gruyter (2001), 19–24.
- [A3] (with M. Mignotte) *On the Diophantine equation  $\frac{x^n-1}{x-1} = y^q$  with negative  $x$* , in: Number Theory for the Millenium I (M. A. Bennett et al. Eds.), pp. 145–151, 2002, A. K. Peters.
- [A4] (with B. Adamczewski) *On the Littlewood conjecture in fields of power series*, Proceedings of the Kanazawa 2005 conference, Adv. Stud. Pure Math. 49 (2007), 1–20.
- [A5] (with B. de Mathan) *On a mixed Littlewood conjecture in fields of power series*. In: Diophantine analysis and related fields (DARF 2007/2008), pp. 19–30, AIP Conf. Proc. 976, Amer. Inst. Phys., Melville, NY, 2008.
- [A6] *Mahler's classification of numbers compared with Koksma's, II*. In: Diophantine approximation. Festschrift for Wolfgang Schmidt. Ed. H.-P. Schlickewei, K. Schmidt and R. F. Tichy, Developments in Mathematics 16, pp. 107–121 (2008), Springer Wien.
- [A7] *On the  $\beta$ -expansion of an algebraic number in an algebraic base  $\beta$* , Integers 9 (2009), 215–226.

### Surveys.

- [S1] *Lower bounds for the greatest prime factor of  $ax^m + by^n$* , Proceedings of the Number Theory conference held in Ostravice, Acta Math. Inform. Univ. Ostraviensis 6 (1998), 53–57.
- [S2] *On the approximation by algebraic numbers with bounded degree*, Proceedings of the Number Theory conference held in Graz, De Gruyter (2000), 47–53.

- [S3] (with J.-P. Conze) *Dynamics of some contracting linear functions modulo 1*, in : Noise, Oscillators and Algebraic Randomness, Lectures at Chapelle des Bois (France), 1999, Ed. M. Planat, pp. 379–387. Lecture Notes in Physics 550, Springer (2000).
- [S4] *Fundamental systems of  $S$ -units with small height and their application to Diophantine equations*, Publ. Math. Debrecen 56 (2000), 279–292.
- [S5] *Diophantine equations over the twentieth century: a (very) brief overview*, in: Analytic number theory—expectations for the 21st century (Kyoto, 2000), Surikaisekikenkyusho Kokyuroku 1219 (2001), 11–16.
- [S6] (with M. Mignotte) *L'équation de Nagell–Ljunggren  $\frac{x^n-1}{x-1} = y^q$* , Enseign. Math. 48 (2002), 147–168.
- [S7] (with B. Adamczewski) *On the decimal expansion of algebraic numbers*, Fiz. Mat. Fak. Moskl. Semin. Darb. 8 (2005), 5–13.
- [S8] (with M. Laurent) *Exponents of Diophantine approximation*. In: Diophantine Geometry Proceedings, Scuola Normale Superiore Pisa, Ser. CRM, vol. 4, 2007, 101–121.
- [S9] (with B. Adamczewski) *A short proof of the transcendence of the Thue-Morse continued fractions*, Amer. Math. Monthly 114 (2007), 536–540.
- [S10] *Linear forms in the logarithms of algebraic numbers close to 1 and applications to Diophantine equations*, Proceedings of the Number Theory conference DION 2005, Mumbai, pp. 59–76, Narosa Publ. House, 2008.
- [S11] (with F. Luca, M. Mignotte and S. Siksek) *Fibonacci Numbers at most one away from a Perfect Power*, Elem. Math. 63 (2008), 65–75.
- [S12] *On the convergents to algebraic numbers*. In: Analytic number theory, 133–143, Cambridge Univ. Press, Cambridge, 2009.

### Chapters in book.

- [C1] (with G. Hanrot and M. Mignotte) *Applications of linear forms in logarithms*, Chapter 12, pp. 411–440, of the book [Henri Cohen, Number theory. Vol. II. Analytic and modern tools. Graduate Texts in Mathematics, 240. Springer, New York, 2007].
- [C2] (with B. Adamczewski) *Transcendence and Diophantine approximation*. Chapter 8, pp. 366–408 of the book [Combinatorics, Automata and Number Theory] edited by V. Berthé and M. Rigo.

### Theses.

- [T1] *Formes linéaires de logarithmes et applications*, Thèse de doctorat, Strasbourg, Publication de l'I.R.M.A., 1996.
- [T2] *Approximation diophantienne effective*, Mémoire d'habilitation, Strasbourg, Publication de l'I.R.M.A., 2000.