Laurent Charles Louis BARATCHART
V I T A

October 21, 2024

Born 9/5/55 in Cotonou, Dahomey
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Studies
Graduated from the Ecole Nationale Supérieure des Mines de Saint-Etienne, France 1975-1978.
Received the DEA de Méthodes Mathématiques de la Gestion et de l'Economie degree from the university of Paris-Dauphine in 1978.
Received the Agrégation de Mathématiques degree in 1981.
Received the docteur-ingénieur degree from the Ecole des Mines de Paris in 1982 (Prof. P. Bernhard, advisor):
Une structure différentielle pour certaines classes de systèmes, application à l'approximation L^2.
Received the thèse d'Etat degree in 1987 from the university of Nice (Prof. A. Galligo, advisor):
Sur l'approximation rationnelle L^2 pour les systèmes dynamiques linéaires.

Positions held
Graduate student and then research fellow at I.N.R.I.A. (Rocquencourt) 1979-1982.
Research fellow at INRIA (Sophia-Antipolis) 1982-1987, adjunct-head of the project "Equations Différentielles Ordinaires et Récursives Appliquées".
Directeur de Recherche at INRIA (Sophia-Antipolis) since 7/1/1987.
Head of the project "Mathématiques et Informatique de l'Automatique et de l'Optimisation pour l'Utilisateur" at INRIA-Sophia, 1988-2003.
Head of the project "Analyse et Problèmes Inverses pour le Contrôle et le Signal" at INRIA-Sophia, 2005-2017.
Senior researcher in the FACTAS team at INRIA, centre de l'Université de Nice Sophia Antipolis, 2018-2022.
Emeritus in the FACTAS team at INRIA, centre de l'Université de Nice Sophia Antipolis, 2018-2022.
Invited researcher at the University of Florida in Gainesville, Spring 1988.
Invited Professor a Cyprus University, Nicosia, Spring 2006.
Invited Professor at Vanderbilt University, Nashville, Fall semester 2009.

Invited Professor at Vanderbilt University, Nashville, Fall semester 2016.
Invited Professor at Vanderbilt University, Nashville, Spring semester 2024.

Main research interests:
Approximation theory, Function Theory, Potential Theory, Orthogonal Polynomials, Harmonic Analysis, Inverse Problems, Controlled Dynamical Systems.

Conferences on Invitation
Workshop on parametrization problems, Bremen, 1985
Modelling, Robustness, and Sensitivity Reduction, Groningen, 1986
From Data to Model, Laxenburg 1987
US-USSR Conference on Approximation Theory, Tampa, 1990
Analysis of Controlled Dynamical Systems, Lyon 1990.
Modelling and Control of Uncertain Systems, Sopron, 1990
From Data to Model, Laxenburg 1991
Computational Methods in Function Theory, Penang 1994
Constructive methods in complex analysis, Oberwolfach, 1995
Numerische Methoden der Approximationstheorie, Oberwolfach, 1997
Computational Methods in Function Theory, Cyprus 1997 (plenary speaker)
Minimal Energy Problems, Hong-Kong 1999
Colloquium University of South Florida, Tampa, March 2000.
Northern British seminar on Functional Analysis, Glasgow, November 2000.
Colloquim Vanderbilt University, Nashville, March 2002.
Colloquium University of Michigan, East Lansing, March 2003.
Special semester on Mathematical System Theory, Mittag-leffler Institute, Stockholm 2003.
Advances in Constructive Approximation, Nashville, 2003 (plenary speaker).
12-th St-Petersburg Summer Meeting in Mathematical Analysis, St-Petersburg 2003.
Funktiontheorie, Oberwolfach 2004.
Journées d'Approximation, Lille, 2004.
Constructive Function Tech04, Atlanta, 2004 (plenary speaker).
Journées d'Analyse Fonctionnelle de Bordeaux, Bordeaux, 2005.
Colloquium University of Michigan, East Lansing, March 2006.
Modern approaches in Asymptotics of Polynomials, BIRS Banff, 2007.
Colloquium University of Newcastle upon Tyne, April 2008.
PICOF, (plenary speaker) Marrakech, 2008.
Journées d'Approximation, Lille, 2008.
Orthogonal Polynomials and Approximation Theory, Madrid, 2008.
Hilbert Spaces of Entire Functions (plenary speaker), Montréal, december 2008.
Econometrics, Time Series Analysis, Systems identification, (plenary speaker) Vienna, 2009.
Colloquium University of Mississipi, Oxford, October 2009.
Colloquium University of Michigan, East Lansing, October 2009.
MTNS 2010 (semi-plenary speaker), Budapest, July 2010.
Finite and Infinite Dimensional Complex Analysis and Applications (plenary speaker), Macau, August 2010.
Colloquium Morningside Inst., Chinese Acad. Sc., Beijing, August 2010.
New Perspectives in Univariate and Multivariate Orthogonal Polynomials, BIRS Banff, 2010.
Computational Complex Analysis and Approximation Theory, Protaras, Cyprus, June 2011
Conference on Blaschke products and their Applications, Fields Institute, Toronto, 2011.
Recent trends in analysis, Bordeaux, Septembre 2011.
Workshop on Potential Theory and Applications, Szőged, June, 2012.
Colloquium, State University of New York, Albany, October 2012.
Colloquium, University of Oregon, Eugene, October 2012.
Inverse Problems and Nonlinear Equations, Palaiseau, May 2013.

Journées d'Analyse, Bordeaux, Octobre 2013.
Gonchar days, Steklov Institute, Moscou, Novembre 2013 (plenary speaker).
Complex Analysis and Related Topics, St-Petersburg, April 2014.
Constructive Function Theory 2014, Nashville, May 2014 (plenary speaker).
Orthogonal Polynomials, Integrable Systems and their Applications, Shanghai, October 2014.
Special Functions and Orthogonal Polynomials, FoCM 2014, Montevideo, december 2014.
Orthogonal Polynomials and Integrable Systems, Workshop AMS-EMS-MSP, Porto, 2015.
IEEE International Instrumentation and Measurement Technology Conference, Pisa, 2015.
Workshop on Blaschke Products and Function Theory, Hong-Kong, 2015.
10-th ISAAC Congress, Macau, 2015.
Orthogonal and Multiple Orthogonal Polynomials, BIRS, Oaxaca, 2015.
Conference of the Functional Analysis, Harmonic Analysis and Probability Research Group (GDR CNRS), Luminy, 2015 (plenary speaker).
25-th St-Petersburg Summer Meeting in Mathematical Analysis, St-Petersburg 2016.
New Trends in Approximation Theory, Fields Institute, Toronto 2016.
Quasilinear equations, Inverse Problems and their Applications, Moscow Institute of Technology, Dolgoprundy 2016 (plenary speaker).
SIGMA 2016, Luminy, 2016.
Complex Analysis Day, Marne-la-Vallée, 2016.
Complex and Functional Analysis and their interactions with Harmonic Analysis, Bedlewo, 2017.
Complex and harmonic analysis, Holon, 2017 (plenary speaker).
Mathematical Congress of the Americas, session: Harmonic Analysis and Inverse Problems, Montreal, 2017.
Midwest Workshop on Asymptotic Analysis, Indianapolis, 2017.
Mathematics, Signal Processing and Linear Systems: New Problems and Directions, Orange, 2017.
Advances in operator theory with applications to mathematical physics, Orange, 2018.
SIGMA-SMAI, Paris 2018.
One-dimensional complex analysis and operator theory, St-Petersburg, 2019 (plenary speaker).
New Directions in Function Theory: From Complex to Hypercomplex to Non-Commutative, Orange, 2019.
Spaces of Analytic Functions: Approximation, Interpolation, Sampling, Barcelona, 2019 (plenary speaker).
Quasilinear equations, Inverse Problems and their Applications, https://qipa2020.mipt.ru/program, on-line 2020 (plenary speaker).
Conference of the Functional Analysis, Harmonic Analysis and Probability Research Group (GDR CNRS), https://www.cirm-math.fr/Schedule/screen_display.php?id_renc=2447, on-line, 2020.
Workshop on Analysis and Control Theory, https://wacot2020.sciencesconf.org/, on-line 2021.
Operators, Functions, Systems: Classical and Modern, Bedlewo (Poland), (2022).
Operator Theory and Spaces of Analytic Functions, Conf. honouring J. Partingtom, London, 2023.
Recent Advances in Function Spaces and Their Operators, Marrakech (Morocco), 2023.
Conference of the Functional Analysis, Harmonic Analysis and Probability Research Group (GDR CNRS), Porquerolles, 2023.
Journées d'Approximation, Lille, 2024.
SIGMA-SMAI, Marseille 2024.
Advances in operator theory with applications to mathematical physics, Orange, 2024.

Teaching activities

1985-1986: Undergraduate Algebra, LM2 program of the University of Nice.
1986-1991: Undergraduate course in Control, MST2 ISI program, University of Nice.
1991-1992: Graduate course in Harmonic Analysis, ESSI program, University of Nice.
1991-1992: Graduate course in Control, DEA *Robotique et Vision*, University of Nice.
1994-1995: Graduate course in Control, DEA *Systèmes dynamiques et turbulence*, INLN Nice.
1996-1997 Graduate course in Control, DEA ARAVIS, University of Nice.

1996-1997: Graduate course in Function Theory, DEA de Mathématiques, University of Nice.
1995-1998 Head of the Control program, DEA ARAVIS, University of Nice.
2004-2005 Graduate course in Potential Theory, DEA de Mathématiques, University de Provence (Marseille I).
2005-2006 Graduate course in Approximation Theory, DEA de Mathématiques, Université de Provence (Marseille I).
Spring 2006 Graduate course in Function Theory, University of Cyprus.
2007-2008 Graduate course in Approximation Theory DEA de Mathématiques, Université de Provence (Marseille I).
2009-2010 Differential Equations, 2-d year, Vanderbilt University.
2017-2018 Graduate course on Inverse Problems, Vanderbilt University.
2024 Graduate course on Compressed Sensing and Inverse Problems, Vanderbilt University.
Advisor of 17 PhD students.

Editorial and managing activities

Scientific secretary of the 8th and 9th International Conference on Analysis and Optimization of Systems;
Member of the program committee of the conference "Automatique pour l'aéronautique et l'espace", 1990 SMAI conference.
Member of the program committee of the 10th conference "Analysis and Optimization of Systems", Sophia-Antipolis 1992.
Member of the program committee of the "International Workshop on Operator Theory and its Applications", Bordeaux 2000.
2003-2005 Member of the "commission de spécialistes" of the Université de Provence since Septembre.
Member of the program committee of "Constructive Functions Tech'04", Atlanta 2004.
Member of the program committee of the 15th IFAC "Symposium on System Identification" (SYSID) 2009, Saint-Malo, France.
Member of the program committee of "Problemes Inverses, Contrôle et Optimisation de Formes" (PICOF), 2010, Carthagena, Spain .
Member of the program committee of "Mathematical Theory of Network and Systems" (MTNS) 2010, Budapest, Hungary.
Member of the program committee of "Computational Complex Analysis and Approximation Theory" (CCAAT) 2011, Protaras, Cyprus.
Organizer (with A. Borichev and N. Nikolskii) of the summer school *Bellman functions in harmonic analysis*, Sophia-Antipolis (France), 2011.
Member of the program committee of "Symposium on System Identification" (SYSID) 20012, Brussels,Belgium.
Member of the program committee of "Mathematical Theory of Network and Systems" (MTNS) 2014, Groningen, The Netherlands.
Member of the program committee of "Symposium on System Identification" (SYSID) 20015, Beijing, China.
Member of the program committee of "Mathematical Theory of Network and Systems" (MTNS) 2016, Minneapolis, Minnesota, USA.
Member of the program committee of "CDPS-Control of Distributed Parameter Systems" 2017, Bordeaux, France.
Member of the program committee of "Symposium on System Identification" (SYSID) 20018, Stockholm, Sweden.
Member of the program committee of "Applied Inverse Problems" (AIP) 20019, Grenoble, France.
Member of the program committee of "Symposium on System Identification" (SYSID) 2021, Padova, Italy.
1992-2000 Team leader of the TMR-program funded *European Research Network on System Identification*, including CWI (the Netherlands), University of Louvain-la-neuve (Belgium), Linköping

University (Sweden), KTH-Stockholm (Sweden) TU Wien (Austria), IRISA (France), Padova University (Italy), Cambridge University (England).
Co-principal investigator (with E.B. Saff) of NSF grant INT-9417234
Principal investigator of NATO Grant PST CLG 979703.
Principal investigator of ANR Grant 07-BLAN-0247-01 *Analyse Harmonique et Problèmes Inverses.*
Investigator of NSF Grant "CMG Collaborative Research: Imaging Magnetization Distributions in Geological Samplings" (2009- 2012)
Investigator of Cyprus NF grant "Orthogonal polynomials in the complex plane: distribution of zeros, strong asymptotics and Shape reconstruction."
Head of the équipe associée INRIA "Inverse Magnetization Problems in Geosciences" joint with MIT Geosciences Lab. and Vanderbilt university Math dept, 2012-2018.
Co-principal investigator of MIT-FRANCE seed fund "Ultra-high Sensitivity Magnetometry for Analyzing Ancient Rock Magnetism"
Member of the Editorial Boards of "Computational Methods and Function Theory" and "Complex Analysis and Operator Theory".
Member of panel 40 of "Agence National de la Recherche" on Mathematics and their Applications, 2016-2019.
Principal investigator of 18 industrial contracts with Dassault, CNES, Alcatel Alenia Space, Thomson TMX, Thalès.

Publication List

Chapters in books

- [1] (with P. Bernhard) Automatique et Systèmes, in *Les Techniques de l'Ingénieur*, Traité Généralités, 1992.
- [2] Identification and function theory, in *Harmonic analysis and rational approximation*, pp. 211–230, Lecture Notes in Control and Inform. Sci., 327, Springer, Berlin, 2006.

Papers in refereed Journals

- [1] (with J. Grimm) An elementary proof of the nonexistence of canonical forms in the real and complex case, Systems and Control Letters, vol 3, n. 4, 1983.
- [2] On the parametrization of linear constant systems, SIAM J. cont. and opt., vol. 23, n. 5, 1984.
- [3] Existence and Generic Properties of L^2 Approximants for Linear Systems, I.M.A. Journal of Math. Control and Information, Vol. 3, pp 89-101, 1986.
- [4] (with A. Ailon, J. Grimm, and G. Langholz) On Polynomial Controllability with Polynomial State for Linear Constant Systems, Technical Note in IEEE. trans. on Automatic Control, vol. 31, n. 2, 1986.
- [5] (with M. Olivi) Index of critical points in l^2-approximation, Systems & Control Letters, vol. 10, pp 167-174, 1988.
- [6] (with M. Cardelli and M. Olivi) Identification and rational l^2-approximation: a gradient algorithm, Automatica, vol.27, n. 2, pp 413-418, 1991.
- [7] (with F. Wielonsky) Rational Approximation in H^2 and Stieltjes integrals : a uniqueness theorem, Constructive Approximation, vol. 9, pp 1-21, 1993.
- [8] (with M. Olivi and F. Wielonsky) On a rational approximation problem in the real Hardy space H^2, Theoretical Computer Science, vol. 94, pp 175-197, 1992.

- [9] (with M. Zerner) On the recovery of functions from pointwise boundary values in a Hardy-Sobolev class of the disk, Journal of Computational and Applied Mathematics, vol. 46, pp 255-269, 1993.
- [10] (with D. Alpay and A. Gombani) On the differential structure of matrix-valued inner functions, Operator Theory: Advances and Applications, vol. 73, pp 30-68, 1994.
- [11](with E. B. Saff and F. Wielonsky) Rational interpolation of the exponential function, Canadian Jour. of Math, vol. 47, pp 1121-1147, 1995.
- [12] (with J. Leblond and J. R. Partington) Hardy approximation to L^∞ functions on subsets of the circle, Constructive Approximation, vol. 12, pp 423-435, 1995.
- [13] (with E. B. Saff and F. Wielonsky) A criterion for uniqueness of a critical point in H_2 rational approximation, Journal d'Analyse Mathématique, vol. 70, pp. 225-266, 1996.
- [14] (with J. Leblond, J. R. Partington and N. Torkhani) Robust Identification from band-limited data, IEEE Trans. on Autom. Control, vol. 42, pp 1318-1325, 1997.
- [15](with J. Leblond) Hardy approximation to L^p functions on subsets of the circle for $1 \leq p < \infty$, Constructive Approximation, vol. 14, pp 41-56, 1998.
- [16] (with M. Olivi) Critical points and error rank in best H_2 matrix rational approximation of fixed Mc-Millan degree, Constructive Approximation, vol. 14, pp 273-300, 1998.
- [17] (with M. Berthod and L. Pottier) Optimization of positive generalized polynomials under l^p constraints, Journal of Convex Analysis, vol. 5, n. 2, pp 353-379, 1998.
- [18] (with J. Leblond, F. Mandrea, et E. B. Saff) How can meromorphic approximation help to solve some 2D inverse problems for the Laplacian?, Inverse Problems, vol. 15, pp-79-90, 1999.
- [19] (with H. Stahl et F. Wielonsky) Non-uniqueness of rational best approximants, Journal of Computational and Applied Maths, vol. 105, pp 141-154, 1999.
- [20](with J. Leblond et J.R. Partington) Problems of Adamjan-Arov-Krein type on subsets of the circle and minimal norm extensions, Constructive Approximation, vol 16, pp 333-357, 2000.
- [21](with H. Stahl et F. Wielonsky) Asymptotic error estimates for L^2 best rational approximants to Markov functions, Journal of Approximation Theory, vol. 108, pp 53-96, 2001.
- [22] (with H. Stahl et F. Wielonsky) Asymptotic uniqueness of best rational aproximants of given degree to Markov functions in $\mathcal{L}^2$ of the circle, Constructive Approximation, vol. 17, pp 103-138, 2001.
- [23] (with V. Prokhorov and E.B. Saff) Best meromorphic approximation of Markov functions on the unit circle, Foundations of Computational Mathematics, vol. 1, n.4, pp. 385-416, 2001.
- [24] (with S. Bila, D. Baillargeat, M. Aubourg, S. Verdeyme, P. Guillon, F. Seyfert, J.Grimm, C. Zanchi and J. Sombrin) Direct electromagnetic optimization of microwave filters, Microwave Magazine, IEEE, Volume: 2 (1), 46 - 51, 2001.
- [25](with V. Prokhorov and E.B. Saff) Asymptotics for minimal Blaschke products and best $L1$ meromorphic approximation to Markov functions, Computational Methods and Function Theory, vol.1 (2), 501–520, 2001.
- [26] (with F. Seyfert) An L^p analog to AAK Theory for $p \geq 2$, Journal of Functional Analysis, vol. 191, pp 52-122, 2002.

- [27](with J. Leblond et J.R. Partington) Asymptotic estimates for interpolation and constrained approximation in H^2 by diagonalization of Toeplitz operators, Integral Equations and Operator Theory, vol. 45, 269-299, 2003.

- [28] (with A. Ben Abda, F. Ben Hassen and J. Leblond) Recovery of pointwise sources or small inclusions in 2D domains and rational approximation, Inverse Problems, vol. 21(1), 51-74, 2005.

- [29] (with R. Küstner and V. Totik) Zero distribution via orthogonality, Annales de l'Institut Fourier, vol. 55(5), 1455-1499, 2005.

- [30] (with F. Mandrea, E.B. Saff and F. Wielonsky) 2-D inverse problems for the Laplacian: A meromorphic approximation approach, J. de Matématiques Pures et Appl.,vol. 86, pp. 1-41, 2006.

- [31] A remark on uniqueness of best rational approximants of degree 1 in L^2 of the circle, Elec. Trans.on Numerical Anal., vol. 25, pp 54-66, 2006.

- [32] (with J. Leblond and J.P. Marmorat) Inverse source problem in a 3-D ball from meromorphic approximation on 2-D slices, Elec. Trans.on Numerical Anal., vol. 25, pp 41-53, 2006.

- [33] (with M. Chyba and J.B. Pomet) A Grobman-Hartman theorem for control systems, J. Dyn. Differential Eqs., vol. 19, pp 75-107, 2007.

- [34] (with P. Enqvist and A. Gombani and M. Olivi) Minimal symmetric Darlington synthesis, Math. of Control, Signal & Syst, vol. 4, pp. 283-311, 2007.

- [35] (with M. Yattselev) Multipoint Padé approximants to complex Cauchy transforms with polar singularities, J. Approx. Theory, vol. 156, pp. 187-211, 2009.

- [36] (with M. Yattselev) Meromorphic approximants for complex Cauchy transforms with polar singularities, Mat. Sb., 200 (9), pp. 3-40, 2009.

- [37] (with M. Yattselev) Convergent interpolation to Cauchy integrals over analytic arcs, Found. Comp. Math., 9 (6), pp. 675–715, 2009.

- [38] (with V. Peller and F. Nazarov) Analytic approximation of matrix functions in L^p, J. Approx. Theory, 158, pp. 242–278, 2009.

- [39] (with J.B. Pomet) On the local linearization of control systems, J. Dynamical & Control Systems, vol. 15 (4), pp. 471–536, 2009.

- [40] (with B.Atfeh, J.Leblond and J.R.Partington) Bounded extremal and Cauchy-Laplace problems on the sphere and shell, J. Fourier Anal. & Appl, Volume 16, Issue 2 (2010), Page 177.

- [41] (with M. Yattselev) Convergent Interpolation to Cauchy Integrals over Analytic Arcs with Jacobi-Type Weights, Int. Math. Res. Notices (2010) Vol. 22, pp. 4211-4275, first published online March 4, 2010 doi:10.1093/imrn/rnq026

- [42] (with J. Leblond and S. Rigat and E. Russ) Hardy spaces of the conjugate Beltrami equation. Article title: Hardy spaces of the conjugate Beltrami equation, Journal of Functional Analysis, Volume 259, Issue 2, 15 July 2010, Pages 384-427 DOI : 10.1016/j.jfa.2010.04.004

- [43] (with S. Kupin and M. Olivi and V. Lunot) Multipoint Schur algorithm and orthogonal rational functions: convergence properties, Journal d'Analyse, vol. 112, pp. 207–255, 2011.

- [44] (with M. Yattselev and H. Stahl) Weighted extremal domains and rational approximation, Advances in Maths, vol. 229, pp. 357–407, 2012.
- [45] (with E.B. Saff and N. Stylianopoulos) On Finite-Term Recurrence Relations for Bergman and Szegő Polynomials, Comput. Methods Funct. Theory, vol. 12(2), 393-402, 2012.
- [46] (with M. Yattselev) Padé approximants to certain elliptic-type functions, Jour. d'Analyse, vol. 121(1), pp. 31–86, 2013.
- [47] (with E. Andrade-Lima, D. Hardin, E.B. Saff and B. Weiss) Characterizing kernels of operators related to thin plate magnetizations via generalizations of Hodge decompositions, Inverse Problems, vol. 29, 2013, doi:10.1088/0266-5611/29/1/015004.
- [48] (with E. Andrade-Lima, D. Hardin, E.B. Saff and B. Weiss) Fast Inversion of Magnetic Field Maps of Unidirectional Planar Geological Magnetization, Journal of Geophysical Research - Solid Earth, vol. 118(6), 2723–2752, 2013.
- [49] (with Y. Fischer and J. Leblond) Dirichlet/Neumann problems and Hardy classes for the planar conductivity equation, Complex variables and Elliptic Equations, vol. 59(4), 504 538, 2014.
- [50] (with A. Borichev and S. Chaabi) Pseudo-holomorphic functions at the critical exponent, Journal of European Math. Soc., vol. 18 (9), pp. 1919–1960, 2016.
- [51] (with S. Chevillard and Q. Tao) Minimax principle and lower bounds in H^2-rational approximation, Journal of Approximation Theory, vol.206, pp. 17-47, 2016.
- [52] (with J. Leblond and L. Bourgeois) Uniqueness results for Inverse Robin Problems with Bounded Coefficient, Journal of Functional Analysis 270, 2508–2542, 2016.
- [53] (with M. Olivi and F. Seyfert) Boundary Nevanlinna-Pick interpolation with prescribed peak points, application to impedance matching. SIMA, vol. 49 (2), pp. 1131–1165, 2017.
- [54] (with D. Pei and Q. Tao) Hardy-Hodge Decomposition of Vector Fields in $\mathbf{R}^n$, Trans. Amer. Math. Soc., 370, pp. 2005-2022,2018.
- [55] (with C. Gerhards) On the Recovery of Core and Crustal Components of Geomagnetic Potential Fields, SIAM J. Appl. Math. 77 (5), pp. 1756–1780, 2017.
- [56] (with S. Chevillard, A. Cooman, M. Olivi, F. Seyfert) Model free closed-loop stability analysis: a linear functional approach. IEEE Trans. Microwave Theory and Techniques, 66 (1), 2018.
- [57] (with J. Leblond and F. Seyfert) Constrained extremal problems in H^2 and Carleman's formulas, Mat. Sbornik 209 (7), pp. 922–957, 2017.
- [58] (with S. Chevillard, D. Hardin, J. Leblond, E. Lima and J.P. Marmorat) Magnetic moment estimation and bounded extremal problems, Inverse Problems and Imaging, 13 (1), pp. 39–67, 2019.
- [59] (with C. Villalobos-Guillen, D. P. Hardin, M. C. Northington, E. B. Saff) Inverse Potential Problems for Divergence of Measures with Total Variation Regularization, Found. Comp. Math., 2020, https://arxiv.org/abs/1809.08334.
- [60] (with S. Fueyo and G. Lebeau and J.B. Pomet) Sufficient Stability Conditions for Time-varying Networks of Telegrapher's Equations or Difference-Delay Equations, SIAM Journal on Mathematical Analysis, vol. 53 (2), pp. 1831–1856, 2021,

- [61] (with C. Gerhards and A. Kegeles) Decomposition of L^2-vector fields on Lipschitz surfaces: characterization via null-spaces of the scalar potential, SIAM Journal on Mathematical Analysis, vol. 53 (4), 2021, DOI:10.1137/20m1387754, https://hal.archives-ouvertes.fr/hal-03086446.

- [62] (with C. Gerhards, A. Kegeles and P. Menzel) Unique reconstruction of simple magnetizations from their magnetic potential, Inverse Problems, vol. 37 (10), 2021.

- [63] (with C. Villalobos-Guillen and D. P. Hardin) Inverse potential problems in divergence form for measures in the plane, ESAIM: COCV, vol. 27, 2021.

- [64] (with S. Chevillard, A. Cooman, M. Olivi, F. Seyfert) Linearized Active Circuits: Transfer Functions and Stability, Mathematics in Engineering, vol. 4 (5), pp.1-18,2021. https://www.aimspress.com/article/10.3934/mine.2022039.

- [65] (with C. Borlina, E. A. Lima, D. Hardin, B. Weiss), Estimating the Net Magnetic Moment of Geological Samples from Planar Field Maps Using Multipoles, *to appear in* G-cubed, 2023.

- [66] (with S. Fueyo and J.B. Pomet) Integral representation formula for linear non-autonomous difference-delay equations, Journal of Integral Equations and Applications, 2024, 36 (4), 10.1216/jie.2024.36.407, hal-04204500v3.

- [67] (with Houssem Haddar and Cristóbal Villalobos Guillén) Silent sources on a surface for the Helmholtz equation and decomposition of L^2 vector fields, hal-04367726v1, *to appear* in the SIAM Journal of Math. Analysis (SIMA), 2024.

Submitted

- (with J. Leblond and M. Nemaire) Silent and equivalent L^p-magnetizations.

- (with S. Fueyo and J.B. Pomet) Exponential stability of linear periodic difference-delay sytems.

- (with H. Stahl and M. Yattselev) n-th Root Optimal Rational Approximants to Functions with Polar Singular Set, 2024, hal-04604029v1

In preparation

- (with J. Mashreghi) Analytic approximation from boundary data.

- (with E. Pozzi and E. Russ) Pseudo-Analytic functions and Dirichlet problems on rectifiable plane domains.

Notes in the Compte Rendus de l'Académie des Sciences

- [1] Un théorème de factorisation et son application à la représentation des sytèmes cycliques causaux, C. R. Acad. Sc. Paris, t. 295, 27 sept. 82, Série I-223.

- [2] Sur la réalisation de Nerode des systèmes multiindiciels, C. R. Acad. Sc. Paris, t. 301, série I, n. 14, 1985.

Conference Proceedings (refereed)

- [1] Représentation des Systèmes Linéaires Stationnaires Causaux Cycliques. Application à l'Approximation L^2, in Proc. 5^e Conférence Internationale sur l'Analyse et l'Optimisation des Systèmes, Versailles, décembre 82.

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