

CURRICULUM VITAE



1. Personal Information:

Name: Amar Debbouche

Address: Department of Mathematics, Faculty of MISM, Guelma
University, P.O. Box 401, Guelma 24000, Algeria

Nationality: Algerian

E-mail: amar_debbouche@yahoo.fr

Tel.: +213 660 32 43 80 (Mobile)

+213 37 21 45 37 (Work)

Fax: +213 37 20 72 68

Date of Birth: 27/04/1980

Place of Birth: Guelma, Algeria

Function: Full Professor

Date: From July 14, 2016

Degree: PhD & Habilitation

Major Field: Pure & Applied Mathematics

<https://scholar.google.com/citations?user=BY3RWuUAAAAJ&hl=en> h-index 31

<https://www.scopus.com/authid/detail.uri?authorId=26538565000> h-index 26

<https://www.webofscience.com/wos/author/record/J-7652-2018> h-index 23

2. Education:

Undergraduate, Graduate and Post-Graduate Qualifications

From	To	Institution/Address	Qualification	Major/Subject
Sept 98	June 02	Guelma University, Faculty of Science, Department of Mathematics, Guelma, Algeria	Diploma of Higher Studies D.E.S. (B.Sc.)	Functional Analysis
Oct 03	Jan 06	Alexandria University, Faculty of Science, Department of Mathematics, Alexandria, Egypt	Master of Science	Pure Mathematics
Nov 05	April 06	International British Institute, English Department, Alexandria, Egypt	English course	English
Nov 06	May 10	USTHB, Faculty of Mathematics, Department of Analysis, Algiers, Algeria	Doctorate (Ph.D.)	Partial Differential Equations
	Jan 12	Constantine Mentouri University, Faculty of Exact Sciences, Department of Mathematics, Algeria	Habilitation	Partial Differential Equations
	July 16	Ministry of Higher Education and Scientific Research, Algiers, Algeria	Full Professor	Mathematics

Title of Master's Degree:

Cauchy problem for some nonlinear fractional differential equations.

<http://www.mendeley.com/profiles/mahmoud-el-borai/>

Title of PhD Degree:

On some fractional differential equations in Banach spaces and their applications.

<http://fmath.usthb.dz/spip.php?article244>

Habilitation: <http://umc.edu.dz/facsce>

Full Professor: [Résultats de la 36ème session CUN](#) (1st nationally, see page 5)

3. Employment details:

Employed at Department of Mathematics, Faculty of MISM, Guelma University, Algeria

Maître Assistant -B-: From October 10, 2006

Maître Assistant -A-: From March 01, 2009

Maître de Conférence -B- (Assistant Professor): From May 10, 2010

Maître de Conférence -A- (Associate Professor): From January 26, 2012

Professeur (Full Professor) : From July 14, 2016 till present

4. Teaching Experience:

Courses Taught:

Département	Matière ou Module	Niveau	Semestriel/Annuel	Année d'études
Tronc commun des Sc. Economiques	Maths I et II	1 ^{ère} année tronc commun LMD Commerce, Gestion	1 ^{er} et 2 ^{ème} Semestre	2006-2007
Sc. Commerciales	Recherches opérationnelles	3 ^{ème} année LMD Sc. Com	5 ^{ème} Semestre	2007-2008
Tronc commun des Sc. Economiques	Maths I et II	1 ^{ère} année tronc commun LMD Commerce, Gestion	1 ^{er} et 2 ^{ème} Semestre	2007-2008
Sc. Commerciales	Recherches opérationnelles	3 ^{ème} année LMD Sc. Com	5 ^{ème} Semestre	2008-2009
Tronc commun des Sc. Economiques	Maths I et II	1 ^{ère} année tronc commun LMD Commerce, Gestion	1 ^{er} et 2 ^{ème} Semestre	2008-2009
Mathématiques	Informatique de Base	1 ^{ère} année master EDP	1 ^{er} Semestre	2009-2010
Mathématiques	Anglais I et II	1 ^{ère} année Master EDP	1 ^{er} et 2 ^{ème} Semestre	2009-2010
Biologie	TP Informatique	1 ^{ère} année LMD Biologie	1 ^{er} Semestre	2009-2010
Mathématiques	Analyse IV	2 ^{ème} année LMD Math	4 ^{ème} Semestre	2009-2010

Sc. Matière	Analyse Complexe	2 ^{ème} année LMD Sc. Matière	4 ^{ème} Semestre	2009-2010
Sc. Matière	Maths I et II	1 ^{ère} année Tronc commun LMD Sc. Matière	1 ^{er} et 2 ^{ème} Semestre	2010-2011
Sc. Technologie	Maths I et II	1 ^{ère} année Tronc commun LMD Sc. technologie	1 ^{er} et 2 ^{ème} Semestre	2010-2011
Sc. Matière	Maths I et II	1 ^{ère} année Tronc commun LMD Sc. Matière	1 ^{er} et 2 ^{ème} Semestre	2011-2012
Mathématiques	Equations Diff. 2	3 ^{ème} année LMD Math	5 ^{ème} Semestre	2012-2013
Mathématiques	Equations Diff. 1	2 ^{ème} année LMD Math	4 ^{ème} Semestre	2012-2013
Mathématiques	Analyse Fonctionnelle I	1 ^{ère} année master EDP	1 ^{er} Semestre	2013-2014
Mathématiques	Equations Diff. 1	2 ^{ème} année LMD Math	4 ^{ème} Semestre	2013-2014
Sc. Matière	Séries & Equations Diff.	2 ^{ème} année LMD Physique	3 ^{ème} Semestre	2014-2015
Sc. Matière	Fonc. Varia. Complexes	2 ^{ème} année LMD Physique	4 ^{ème} Semestre	2014-2015
Mathématiques	Calcul Fractionnaire	1 ^{ère} année master AMA	2 ^{ème} Semestre	2014-2015
Sc. Matière	Séries & Equations Diff.	2 ^{ème} année LMD Physique	3 ^{ème} Semestre	2015-2016
Sc. Matière	Fonc. Varia. Complexes	2 ^{ème} année LMD Physique	4 ^{ème} Semestre	2015-2016
Mathématiques	Calcul Fractionnaire	1 ^{ère} année master AMA	2 ^{ème} Semestre	2015-2016
Mathématiques	Equations Diff.	3 ^{ème} année LMD Math	5 ^{ème} Semestre	2016-2017
Mathématiques	Transformations Int. Lp	3 ^{ème} année LMD Math	6 ^{ème} Semestre	2016-2017
Mathématiques	Equations Diff.	3 ^{ème} année LMD Math	5 ^{ème} Semestre	2017-2018
Mathématiques	Transformations Int. Lp	3 ^{ème} année LMD Math	6 ^{ème} Semestre	2017-2018
Mathématiques	Equations Diff.	3 ^{ème} année LMD Math	5 ^{ème} Semestre	2018-2019
Mathématiques	Transformations Int. Lp	3 ^{ème} année LMD Math	6 ^{ème} Semestre	2018-2019
Mathématiques	Analyse I	1 ^{ère} année LMD Math	1 ^{er} Semestre	2019-2020
Mathématiques	Algèbre II	1 ^{ère} année LMD Math	2 ^{ème} Semestre	2019-2020
Sc. Matière	Séries & Equations Diff.	2 ^{ème} année LMD Physique	3 ^{ème} Semestre	2019-2020
Sc. Matière	Fonc. Varia. Complexes	2 ^{ème} année LMD Physique	4 ^{ème} Semestre	2019-2020
Mathématiques	Analyse I	1 ^{ère} année LMD Math	1 ^{er} Semestre	2020-2021
Mathématiques	Analyse II	1 ^{ère} année LMD Math	2 ^{ème} Semestre	2020-2021
Sc. Matière	Séries & Equations Diff.	2 ^{ème} année LMD Physique	3 ^{ème} Semestre	2020-2021
Sc. Matière	Fonc. Varia. Complexes	2 ^{ème} année LMD Physique	4 ^{ème} Semestre	2020-2021

Sc. Matière	Séries & Equations Diff.	2 ^{ème} année LMD Physique	3 ^{ème} Semestre	2021-2022
Sc. Matière	Fonc. Varia. Complexes	2 ^{ème} année LMD Physique	4 ^{ème} Semestre	2021-2022
Sc. Matière	Maths. pour la physique	3 ^{ème} année LMD Physique	5 ^{ème} Semestre	2021-2022
Mathématiques	Anglais I	1 ^{ère} année Master Math	1 ^{er} Semestre	2022-2023
Mathématiques	Systèmes conservatifs et dissipatifs	2 ^{ème} année Master Math	3 ^{ème} Semestre	2022-2023
Mathématiques	Anglais II	1 ^{ère} année Master Math	2 ^{ème} Semestre	2022-2023
Mathématiques	Théorie des Semigroupes	1 ^{ère} année Master Math	2 ^{ème} Semestre	2022-2023
Mathématiques	Anglais I	1 ^{ère} année Master Math	1 ^{er} Semestre	2023-2024
Mathématiques	Systèmes conservatifs et dissipatifs	2 ^{ème} année Master Math	3 ^{ème} Semestre	2023-2024
Mathématiques	Séminaire	2 ^{ème} année Master Math	3 ^{ème} Semestre	2023-2024
Mathématiques	Anglais II	1 ^{ère} année Master Math	2 ^{ème} Semestre	2023-2024
Mathématiques	Théorie des Semigroupes	1 ^{ère} année Master Math	2 ^{ème} Semestre	2023-2024
Mathématiques	LaTeX	1 ^{ère} année Master Math	2 ^{ème} Semestre	2023-2024

5. Research Interests:

- 1- Differential Equations (ODE & PDE)
- 2- Fractional Dynamic Systems
- 3- Inclusions, Inequalities and Multivalued Maps
- 4- Semigroup Theory and Abstract Analysis
- 5- Control Theory, Optimal Control and Optimization
- 6- Stochastic Analysis and Random Variables
- 7- Dynamical Systems
- 8- Mathematical Modelling
- 9- Cancer & HIV/AIDS Dynamics

10- Infectious and noninfectious diseases models

6. List of Publications (refereed journals):

[1] A. Debbouche, M. M. El-Borai, *Weak Almost Periodic and Optimal Mild Solutions of Fractional Evolution Equations*, *Electron. J. Diff. Eqns.*, Vol. 2009, no.46 (2009) 1--8.

[2] M. M. El-Borai, A. Debbouche, *On Some Fractional Integro-Differential Equations with Analytic Semigroups*, *Int. J. Contemp. Math. Sciences*, Vol. 4, No. 28 (2009) 1361 -- 1371.

[3] M. M. El-Borai, A. Debbouche, *Almost Periodic Solutions of Some Nonlinear Fractional Differential Equations*, *Int. J. Contemp. Math. Sciences*, Vol. 4, No. 28 (2009) 1373--1387.

[4] A. Debbouche, *Fractional Evolution Integro-Differential Systems with Nonlocal Conditions*, *Advances in Dynamical Systems and Applications*, Vol. 5, No. 1 (2010) 49--60.

[5] A. Debbouche, *Fractional Nonlocal Impulsive Quasilinear Multi-Delay Integro-Differential Systems*, *Advances in Difference Equations*, Vol. 2011, no. 5 (2011) 1--10.

[6] A. Debbouche, D. Baleanu, *Controllability of Fractional Evolution Nonlocal Impulsive Quasilinear Delay Integro-Differential Systems*, *Computers and Mathematics with Applications*, Vol. 62, no. 3 (2011) 1442--1450.

[7] A. Debbouche, *Fractional Nonlinear Nonlocal Delay Evolution Equations With New Delay Resolvent Family*, *Journal of Nonlinear Evolution Equations and Applications*, No. 6 (2011) 91--100.

[8] A. Debbouche, D. Baleanu, *Exact Null Controllability for Fractional Nonlocal Integrodifferential Equations via Implicit Evolution System*, *Journal of Applied Mathematics*, Vol. 2012 (2012), Article ID 931975, 17 pages.

[9] A. Debbouche, D. Baleanu, Ravi P Agarwal, *Nonlocal nonlinear integrodifferential equations of fractional orders*, *Boundary Value Problems*, Vol. 2012 (2012), No.78,10 pages.

- [10] M. Bragdi, A. Debbouche, *Controllability of Fractional Nonlocal Quasilinear Evolution Inclusions with Resolvent Families*, *International Journal of Difference Equations*, Vol. 8, No. 1 (2013) 15--25
- [11] M. Bragdi, A. Debbouche, *Controllability of fractional evolution integro-differential equations with almost sectorial operators*, *NONLINEAR STUDIES*, Vol. 20, No. 2 (2013) 195--204
- [12] M. Bragdi, A. Debbouche, D. Baleanu, *Existence of Solutions for Fractional Differential Inclusions with Separated Boundary Conditions in Banach Space*, *Advances in Mathematical Physics*, Vol. 2013 (2013), Article ID 426061, 5 pages
- [13] M. Kirane, A. Kadem, A. Debbouche, *Blowing-up Solutions to Two-times Fractional Differential Equations*, *Mathematische Nachrichten*, Vol. 286, No. 17-18 (2013) 1797--1804
- [14] A. Debbouche and D. F. M. Torres, *Approximate Controllability of Fractional Nonlocal Delay Semilinear Systems in Hilbert Spaces*, *Internat. J. Control*, Vol. 86, no. 9 (2013) 1577--1585
- [15] A. Harrat, A. Debbouche, *Sobolev type fractional delay impulsive equations with Alpha-Sobolev resolvent families and integral conditions*, *NONLINEAR STUDIES*, Vol. 20, No. 4 (2013) 549--558
- [16] M. Kerboua, A. Debbouche and D. Baleanu, *Approximate Controllability of Sobolev Type Nonlocal Fractional Stochastic Dynamic Systems in Hilbert Spaces*, *Abstract and Applied Analysis*, Vol. 2013 (2013), Article ID 262191, 10 pages.
- [17] V. E. Fedorov and A. Debbouche, *A Class of Degenerate Fractional Evolution Systems in Banach Spaces*, *Differential Equations*, Vol. 49, no. 12 (2013) 1569--1576.
- [18] A. Debbouche and D. F. M. Torres, *Approximate controllability of fractional delay dynamic inclusions with nonlocal control conditions*, *Appl. Math. Comput.* 243(2014) 161--175.
- [19] A. Debbouche and J. J. Nieto, *Sobolev type fractional abstract evolution equations with nonlocal conditions and optimal multi-controls*, *Appl. Math. Comput.* 245 (2014) 74--85.

- [20] M. Kerboua, A. Debbouche, D. Baleanu, *Approximate controllability of Sobolev type fractional stochastic nonlocal nonlinear differential equations in Hilbert spaces*, *Electronic Journal of Qualitative Theory of Differential Equations*, n. 58 (2014) 1--16.
- [21] M. Kerboua, A. Debbouche, *Complete controllability of nonlocal fractional stochastic differential evolution equations with Poisson jumps in Hilbert spaces*, *Int. J. Adv. Appl. Math. and Mech.* 3(1) (2015) 41—48.
- [22] A. Debbouche and D. F. M. Torres, *Sobolev type fractional dynamic equations and optimal multi-integral controls with fractional nonlocal conditions*, *Fractional Calculus and Applied Analysis*, Vol. 18, no. 1 (2015) 95--121.
- [23] A. Debbouche, J. J. Nieto, *Relaxation in controlled systems described by fractional integro-differential equations with nonlocal control conditions*, *Electronic Journal of Differential Equations*, 2015.89 (2015) 1--18.
- [24] R. Sakthivel, Y. Ren, A. Debbouche, N.I. Mahmudov, *Approximate controllability of fractional stochastic differential inclusions with nonlocal conditions*, *Applicable Analysis*, vol. 95, no. 11 (2016) 2361--2382.
- [25] Z.H. Wu, A. Debbouche, J. Guirao, X.J. Yang, *On local fractional Volterra integral equations in fractal heat transfer*, *Thermal Science*, Vol. 20 (2016) Suppl. 3, PP. S795--S800.
- [26] V. E. Fedorov, E. A. Romanova, A. Debbouche, *Analytic in a sector resolving families of operators for degenerate evolution equations of a fractional order*, *Sib. J. Pure and Appl. Math.*, 16:2 (2016) 93–107.
- [27] N. Derdar, A. Debbouche, *Nonlinear Degenerate Fractional Evolution Equations with Nonlocal Conditions*, *Fundamenta Informaticae*, Vol. 151, no. 1-4 (2017) 473--485.
- [28] B. Meneceur, K. Haouam, A. Debbouche, *Systems of Semilinear Evolution Inequalities with Temporal Fractional Derivative on the Heisenberg Group*, *Advances in Difference Equations*, No. 12 (2017) 1--15
- [29] S. Liu, A. Debbouche, J-R. Wang, *On the Iterative Control for Stochastic Impulsive Differential Equations with Randomly Varying Trial Lengths*, *Journal of Computational and Applied Mathematics*, 312 (2017) 47--57.

- [30] A. Debbouche, V. Antonov, *Approximate controllability of semilinear Hilfer fractional differential inclusions with impulsive control inclusion conditions in Banach spaces*, *Chaos, Solitons & Fractals*, 102 (2017) 140–148
- [31] Q. Chen, A. Debbouche, Z. Luo, J-R, Wang, *Impulsive fractional differential equations with Riemann–Liouville derivative and iterative learning control*, *Chaos, Solitons & Fractals*, 102 (2017) 111--118.
- [32] A. Debbouche, J. J. Nieto, D. F. M. Torres, *Optimal Solutions to Relaxation in Multiple Control Problems of Sobolev Type with Nonlocal Nonlinear Fractional Differential Equations*, *Journal of Optimization Theory and Applications*, 174(1) (2017) 7--31.
- [33] X. Yu, A. Debbouche, J-R. Wang, *On the Iterative Learning Control of Fractional Impulsive Evolution Equations in Banach Spaces*, *Mathematical Methods in Applied Sciences*, 40(17) (2017) 6061--6069.
- [34] A. Debbouche, V. Antonov, *Finite-dimensional diffusion models of heat transfer in fractal mediums involving local fractional derivatives*, *NONLINEAR STUDIES*, Vol. 24, no. 3 (2017) 527--535.
- [35] X-J, Yang, H.M. Srivastava, D.F.M. Torres, A. Debbouche, *General fractional-order anomalous diffusion with nonsingular power-law kernel*, *Thermal Science*, Vol. 21 (2017) Supp. 1, PP: S1-S9.
- [36] V. E. Fedorov, E. A. Romanova, A. Debbouche, *Analytic in a sector resolving families of operators for degenerate evolution equations of a fractional order*, *Journal of Mathematical Sciences*, 228(4) (2018) 380—394
- [37] S. Liu, A. Debbouche, J-R. Wang, *ILC Method for Solving Approximate Controllability of Fractional Differential Equations with Noninstantaneous Impulses*, *Journal of Computational and Applied Mathematics*, Vol. 339 (2018) 343—355
- [38] Y. Zhou, J. Manimaran, L. Shangerganesh, A. Debbouche, *A class of time fractional reaction-diffusion equation with nonlocal boundary condition*, *Mathematical Methods in the Applied Sciences*, Vol. 41, no. 8 (2018) 2987--2999.
- [39] J. Cao, A. Debbouche, Y. Zhou, *Asymptotically Almost Periodicity for a Class of Weyl–Liouville fractional Evolution Equations*, *Mediterr. J. Math.* (2018) 15: 155.
- [40] E.M. Streletskaya, V.E. Fedorov, A. Debbouche, *The Cauchy problem for distributed order equations in Banach spaces*, *Mathematical notes of NEFU*, Vol. 25, no. 1 (2018) 63--72.

[41] S. Guechi, A. Debbouche, D. F.M. Torres, *Approximate controllability of impulsive nonlocal nonlinear fractional dynamical systems and optimal controls*, *Miskolc Mathematical Notes*, Vol. 19, no. 1 (2018) 255--271

[42] A. Harrat, J.J. Nieto, A. Debbouche, *Solvability and Optimal Controls of Impulsive Hilfer Fractional Delay Evolution Inclusions with Clarke Subdifferential*, *Journal of Computational and Applied Mathematics*, Vol. 344 (2018) 725—737

[43] M. Li, A. Debbouche, J-R. Wang, *Relative controllability in fractional differential equations with pure delay*, *Mathematical Methods in Applied Sciences*, Vol. 41, no.18 (2018) 8906--8914

[44] L. Peng, A. Debbouche, Y. Zhou, *Existence and approximations of solutions for time-fractional Navier--stokes equations*, *Mathematical Methods in the Applied Sciences*, Vol 41, no. 18 (2018) 8973--8984

[45] Y. Zhou, J. Manimaran, L. Shangerganesh, A. Debbouche, *Weakness and Mittag–Leffler Stability of Solutions for Time-Fractional Keller–Segel Models*, *International Journal of Nonlinear Sciences and Numerical Simulation*, Vol. 19, no.7-8 (2018) 753--761,

[46] N.H. Tuan, A. Debbouche, T.B. Ngoc, *Existence and regularity of final value problems for time fractional wave equations*, *Computers & Mathematics with Applications*, Vol. 78, no. 5 (2019) 1396--1414

[47] L. Peng, Y. Zhou, A. Debbouche, *Approximation techniques of optimal control problems for fractional dynamic systems in separable Hilbert spaces*, *Chaos, Solitons & Fractals*, Vo. 118, (2019) 234—241

[48] C. Burgos, J.C. Cortés, A. Debbouche, L. Villafuerte, R.J. Villanueva, *Random fractional generalized Airy differential equations: A probabilistic analysis using mean square calculus*, *Applied Mathematics and Computation*, Vol. 352(2019)15—29

[49] J-R. Wang, M. Feckan, A. Debbouche, *Time Optimal Controls of System Governed by Non-instantaneous Impulsive Differential Equations*, *Journal of Optimization Theory and Applications*, (2019) 182: 573—587

[50] J. Cao, A. Debbouche, Y. Zhou, *Asymptotic Almost-Periodicity for a Class of Weyl-Like Fractional Difference Equations*, *Mathematics*, Vol. 7, no. 7 (2019) 592

- [51] J. Manimaran, S. Lingeshwaran, A. Debbouche, V. Antonov, Numerical solutions for time-fractional cancer invasion system with nonlocal diffusion, *Frontiers in Physics*, Vol. 7 (2019): 93
- [52] P.T. Sowndarrajan, J. Manimaran, A. Debbouche, L. Shangerganesh, Distributed optimal control of a tumor growth treatment model with cross-diffusion effect, *The European Physical Journal Plus*, 134(9) (2019) 463
- [53] H. Kim, R. Sakthivel, A. Debbouche, D.F.M. Torres, Traveling wave solutions of some important Wick-type fractional stochastic nonlinear partial differential equations, *Chaos Solitons & Fractals*, 131 (2020), Art. 109542, 12 pp
- [54] S. Subbaiyan, A. Debbouche, J-R. Wang, Approximate controllability of Hilfer fractional Sobolev type integrodifferential inclusions with nonlocal conditions, *Int. J. Dynamical Systems and Differential Equations*, 10(1) (2020), 59-80
- [55] R. Dhaval, M. Malik, S. Abbas, A. Debbouche, Optimal controls for second-order stochastic differential equations driven by mixed-fractional Brownian motion with impulses, *Mathematical Methods in the Applied Sciences*, 43(7) (2020) 4107-4124
- [56] J. Manimaran, L. Shangerganesh, A. Debbouche, A time-fractional competition ecological model with cross-diffusion, *Mathematical Methods in the Applied Sciences*, 43(8) (2020) 5197–5211
- [57] S. Chakraborty, A. Debbouche, P. K. Roy, A mathematical modelling for treatment of HPV associated cervical cancer: NK and effector T cell based control study, *NONLINEAR STUDIES*, 27(2) (2020) 325-336
- [58] S. Dhama, S. Abbas, A. Debbouche, Doubly-weighted pseudo almost automorphic solutions for stochastic dynamic equations with Stepanov-like coefficients on time scales, *Chaos Solitons & Fractals*, 137 (2020) Art. 109899, 10 pp
- [59] G. Nazir, K. Shah, A. Debbouche, R.A. Khan, Study of HIV mathematical model under nonsingular kernel type derivative of fractional order, *Chaos Solitons & Fractals*, 139 (2020) Art. 110095, 8 pp
- [60] S. Chakraborty, A. Debbouche, V. Antonov, The role of diagnosis at early stages to control cervical cancer: a mathematical prediction, *The European Physical Journal Plus*, 135(10) (2020) 780
- [61] A. Debbouche, V. Fedorov, A Class of Fractional Degenerate Evolution Equations with Delay, *Mathematics*, Vol. 8, no.10 (2020) 1700

[62] J. Manimaran, L. Shangerganesh , A. Debbouche, *Finite element error analysis of a time-fractional nonlocal diffusion equation with the Dirichlet energy*, *Journal of Computational and Applied Mathematics*, 382 (2021) Art. 113066, 11 pp

[63] V. Kumar, M. Malik, A. Debbouche, *Total controllability of neutral fractional differential equation with non-instantaneous impulsive effects*, *Journal of Computational and Applied Mathematics*, 383 (2021) Art. 113158, 18 pp

[64] V. Kumar, M. Malik, A. Debbouche, *Stability and controllability analysis of fractional damped differential system with non-instantaneous impulses*, *Applied Mathematics and Computation*, 391 (2021) Art. 125633, 17 pp

[65] A. Debbouche, M.V. Polovinkina, I.P. Polovinkin, C.A. Valentim Jr, S.A. David, *On the stability of stationary solutions in diffusion models of oncological processes*, *The European Physical Journal Plus*, 136(1) (2021) 131

[66] S. Tyagi, S.C. Martha, S. Abbas, A. Debbouche, *Mathematical modeling and analysis for controlling the spread of infectious diseases*, *Chaos Solitons & Fractals*, 144(3) (2021) Art. 110707, 14pp

[67] M.V. Polovinkina, A. Debbouche, I.P. Polovinkin, S.A. David, *Stability of stationary solutions for the glioma growth equations with radial or axial symmetries*, *Mathematical Methods in the Applied Sciences*, 44(15) (2021) 12021--12034

[68] K. Karthikeyan, A. Debbouche, D.F.M. Torres, *Analysis of Hilfer Fractional Integro-Differential Equations with Almost Sectorial Operators*, *Fractal and Fractional*, Vol. 5, no.1 (2021) 22

[69] J. Manimaran, L. Shangerganesh , A. Debbouche, J.C. Cortés, *A time-fractional HIV infection model with nonlinear diffusion*, *Results in Physics* 25(6) (2021) Art. 104293, 13pp

[70] S. Guechi, R. Dhayal, A. Debbouche, M. Malik, *Analysis and Optimal Control of ϕ -Hilfer Fractional Semilinear Equations Involving Nonlocal Impulsive Conditions*, *Symmetry* 13(11) (2021) 2084

[71] S.A. David , C.A. Valentim, A. Debbouche, *Fractional Modeling Applied to the Dynamics of the Action Potential in Cardiac Tissue*, *Fractal and Fractional*, 6(3) (2022) 149

- [72] V. Kumar , M. Kostić , A. Tridane, A. Debbouche, *Controllability of switched Hilfer neutral fractional dynamic systems with impulses*, *IMA Journal of Mathematical Control and Information*, 39(3) (2022) 807--836.
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[83] S. Hariharan, L. Shangerganesh, A. Debbouche, V. Antonov, Stability analysis of spatiotemporal reaction–diffusion mathematical model incorporating the varicella virus transmission, *Eur. Phys. J. Plus*, 138(12) (2023) 1123.

[84] S. Khan, K. Shah, A. Debbouche, S. Zeb, V. Antonov, Solvability and Ulam-Hyers stability analysis for nonlinear piecewise fractional cancer dynamic systems, *Physica Scripta*, 99(2) (2024) 025225.

[85] M. Boukhobza, A. Debbouche, L. Shangerganesh, J.J. Nieto, The Stability of Solutions of the Variable-Order Fractional Optimal Control Model for the COVID-19 Epidemic in Discrete Time, *Mathematics*, 12(8) (2024) 1236.

[86] M. Boukhobza, A. Debbouche, L. Shangerganesh, D.F.M. Torres, Modeling the dynamics of the Hepatitis B virus via a variable-order discrete system, *Chaos, Solitons & Fractals*, 184 (2024), 114987.

7. Attended Conferences (with presentations)

1- *Fractional Nonlocal Nonlinear Integro-Differential Equations with Evolution Systems, The 6th International Conference: Dynamical Systems and Applications, July 10-14, 2010, Antalya, Turkey*

2- *Fractional Nonlocal Impulsive Quasilinear Delay Integro-Differential Systems, 25th IFIP TC 7 Conference 2011 on System Modeling and Optimization, September 12-16, 2011, Berlin, Germany*

3- *Existence and Controllability Results for Some Fractional Evolution Systems, International Conference: Algorithmic Analysis of Unstable Problems, October 31 - November 05, 2011, Ekaterinburg, Russia*

4- *Approximate Controllability for Nonlinear Fractional Evolution systems, International Conference on Pure and Applied Mathematics "ICPAM'12", May 28-30, 2012, Guelma, Algeria*

5- *New Concepts on Some Fractional Differential Equations, Workshop on Operator Theory and Operator Algebras "WOAT 2012", September 11-14, 2012, Lisbon, Portugal*

6- *Approximate Controllability for Some Fractional Evolution Inclusions, International Conference on the Theory, Methods and Applications of Nonlinear Equations, December 17-21, 2012, Kingsville-Texas, USA*

7- *Approximate controllability of fractional nonlocal control dynamic inclusions, 4th International conference on Function spaces, Differential operators, General topology and Problems of mathematical education, March 25-29, 2013, Moscow, Russia*

8- *Sobolev Type Nonlocal Fractional Stochastic Control Systems in Hilbert Spaces, International Conference on Scientific Computation and Differential Equations, September 16–20, 2013, Valladolid, Spain*

9- *Optimal Control for Fractional Nonlocal Dynamic Equations of Sobolev Type, XXX EURO mini Conference "Optimization in the Natural Sciences" February 5–9, 2014 Aveiro, Portugal*

10- *Sobolev Type Fractional Nonlocal Dynamic Systems and Optimal Multi-ontrols, International Conference on Advances in Applied Mathematics and Mathematical Physics, August 19-21, 2014, Istanbul, Turkey.*

11- *Relaxation and Optimality Properties in Nonlinear Control Problems of Fractional, Nonlocal Systems, The International Conference "Mathematical and Computational Modelling in Science and Technology", August 02-07, 2015, Izmir, Turkey.*

12- *Optimal Control Problem Described by Fractional Nonlocal System in Separable Reflexive Banach Space, International Conference "Phase Transitions, Critical and Nonlinear Phenomena in Condensed Matter", August 24-28, 2015, Chelyabinsk, Russia.*

13- *Approximate controllability of fractional differential systems with nonlocal conditions in Hilbert spaces, 21st International Summer School on Global Analysis and Applications, August 15-19, 2016, Poprad, Slovakia*

14- *Some results on fractional optimal control problems of Sobolev type, International scientific conference “Contemporary Problems of Mathematical Physics and Computational Mathematics”, October 31—November 03, 2016, Moscow, Russia*

15- *Some impulsive nonlocal control systems of Hilfer fractional orders, International Conference on Mathematical Modelling in Applied Sciences, July 24-28, 2017, St. Petersburg, Russia*

16- *Cancer Dynamic Models Involving Time-Fractional Differential Equations with Dirichlet Boundary Conditions, International Conference in Nonlinear Analysis and Boundary Value Problems, September 4-7, 2018, Santiago de Compostela, Spain*

17- *Analysis of weak solutions and stability for time fractional Keller–Segel models, International Conference on Advances in Applied Mathematics, December 17-20, 2018, Sousse, Tunisia*

18- *Mittag-Leffler stability analysis for time-fractional partial differential equations, 12th International ISAAC Congress, July 29 - August 02, 2019, Aveiro, Portugal*

19- *Mathematical model involving time-fractional partial differential equations, 2nd International Conference on Mathematical Modelling in Applied Sciences, August 20-24, 2019, Belgorod, Russia*

20- *Cancer Dynamic Systems: Mathematical Modelling for noninfectious diseases, International Conference on Nonlinear Science and Complexity, July 10-15, 2023, Istanbul, Turkey*

8. Scientific Events

Chair of Organizing Committee:

1. *International Conference on Pure and Applied Mathematics, ICPAM’12, Guelma University, Guelma-Algeria, May 28-30, 2012.*

<http://www.univ-guelma.dz/seminaires/icpam12/Organizing%20committee.html>

2. *The International Conference “Mathematical and Computational Modelling in Science and Technology” ICMCMST’15, Izmir University, Izmir-Turkey, August 02-07, 2015*

<http://icmcmst.alpha-publishing.net/committees-org.php>

3. *International Conference on Mathematical Modelling in Applied Sciences, ICMMAS'17, SPbPU, St. Petersburg-Russia, July 24-28, 2017.*

<http://icmmas.alpha-publishing.net/index.php?page=organizing-committee>

4. *2nd International Conference on Mathematical Modelling in Applied Sciences, ICMMAS'19, BSU, Belgorod-Russia, August 20-24, 2019.*

<http://icmmas19.alpha-publishing.net/organizing-committee>

Member in Organizing Committee:

1. *International Conference on Advances in Applied Mathematics and Mathematical Physics ICAAMMP'14, Yildiz Technical university, Istanbul, Turkey, August 19-21, 2014* <http://icaammp.naturalspublishing.com/page.asp?pgid=13>

2. *International conference on Nonlinear Science and Complexity, ICNSC 2023, Biruni University, Istanbul, Turkey, July 10-15, 2023 (co-chair)*

<https://ntmsci.com/Conferences/ICNSC2023>

Member in Scientific Committee:

1. *International Meeting on Applied Mathematics in Errachidia IMAME'16, Moulay-Ismaïl University, Errachidia, Morocco, May 09-12, 2016*

<https://sites.google.com/site/imamerrachidia2016/scientific-committee>

2. *2nd International Conference on Pure and Applied Sciences ICPAM'16, Yildiz Technical University, Istanbul, Turkey, June 01-05, 2016*

<http://icpam-04.naturalspublishing.com/page.asp?pgid=5>

3. *3rd International Conference on Pure and Applied Sciences ICPAM'17, Dubai, United Arab Emirates, February 02-06, 2017*

<http://icpam-04.naturalspublishing.com/page.asp?pgid=5>

4. *The 5th International Conference on Complex Dynamical Systems in Life Sciences: Modeling and Analysis ICCDS'2018, University of Aveiro, Portugal, May 10-12, 2018*

<https://sites.google.com/view/5thiccds2018/committees>

5. *International Conference on Applied Mathematics in Engineering ICAME'18, Burhaniye, Balikesir, Turkey, June 27-29, 2018*
<http://icame.balikesir.edu.tr/committees.html>

6. *The International Conference on Fractional Differentiation and its Applications ICFDA'18, The University of Jordan, Amman, Jordan, July 16-18, 2018*
<http://conferences.ju.edu.jo/en/icfda2018/Home.aspx>

7. *The International Conference on Fractional Differentiation and its Applications ICFDA'23, Ajman University, United Arab Emirates, March 14-16, 2023*
<https://www.ajman.ac.ae/en/icfda2022>

9. Supervised Postgraduate Students

Intitulé de la Thèse	Diplôme	Etudiants	Date de Soutenance
Contrôle dynamique de quelques systèmes fractionnaires non locaux et leurs applications	PhD	➤ KERBOUA Mourad	19 /05/ 2016
Equations d'évolutions fractionnaires dans les espaces de Banach	PhD	➤ HARRAT Aicha	12 /12/ 2018
Systèmes dynamique contrôle fractionnaire dégénérés et applications	PhD	➤ DERDAR Nedjemeddine	27 /01/ 2019
Systèmes dynamique non linéaire fractionnaire et contrôle optimal	PhD	➤ GUECHI Sarra	16/12//2021
Sur la solvabilité et le contrôle optimal des équations différentielles fractionnaires	PhD	➤ HAKKAR Naima	13/09//2023
Equations différentielles stochastiques d'ordre fractionnaire dans un espace de Hilbert.	PhD	➤ BEKHOUCHE Saadi	Prévue 2024
Solutions périodiques des systèmes dynamiques d'ordre fractionnaire et	PhD	➤ HAMAMDIA Salim	Prévue 2024

applications			
Variable order fractional discrete systems and applications	PhD	➤ BOUKHOBZA Meriem	Prévue 2024

10. Supervised Undergraduate Students

Intitulé du mémoire	Diplôme	Etudiants	Date de Soutenance
Problème de Cauchy-Lipschitz	Licence LMD	➤ KHELAIPIA Fahima ➤ RAHAB Nahla	Juin 2009
Introduction aux équations différentielles ordinaires non linéaires	Licence LMD	➤ MERAD Lyamna ➤ GHALLEB Houda	Juin 2010
Introduction élémentaire a la théorie des équations différentielles linéaires	Licence LMD	➤ GUEMAR Soufyane ➤ MEHIRA Khaled	Juin 2010
La théorie des semi-groupes et applications aux EDP	Master LMD	➤ EL-BIR Samia ➤ KHELAIPIA Fahima	Juin 2011
Equations différentielles fractionnaires et leurs applications	Master LMD	➤ HAFDALLAH Souad ➤ ZITOUNI Houda	Juin 2011
Quelques théorèmes d'existence et d'unicité de solutions d'équations différentielles	Licence LMD	➤ KOUADIRA Najib ➤ CHEKROUBA Dalila	Juin 2012
La théorie de point fixe pour certains systèmes dynamiques dans les espaces de Banach	Master LMD	➤ CHERIET Ali ➤ MAKHLOUF Walid	Juin 2013
Systèmes d'inclusion control fractionnaire dans l'espace de Banach	Master LMD	➤ GUEROUI Nassima	Juin 2014
Systèmes différentiels fractionnaires dans les espaces de Banach	Master LMD	➤ BOUDOUR Mohamed	Juin 2014
Systèmes stochastiques d'ordres	Master LMD	➤ MEKHANIA Nadjat	Juin 2014

fractionnaires dans les espaces de Hilbert		➤ BENNOUR Amel	
Systèmes de contrôles continués et discrets d'ordres fractionnaires	Master LMD	➤ ZALANI Lamia	Juin 2015
Solutions presque périodiques d'équations différentielles semilinéaires dans les espaces de Banach	Master LMD	➤ MOUMENI Zakaria	Juin 2016
Problèmes d'optimisations pour quelques équations d'évolutions d'ordre fractionnaires	Master LMD	➤ HAZEM Said	Juin 2016
Systèmes d'inclusion semi linéaires de Hilfer fractionnaires avec conditions non locaux	Master LMD	➤ DAHNANE Nour-el-houda	Juin 2017
Mathematical models involving Cancer and HIV/AIDS dynamic systems	Master LMD	➤ BENKIRAT Kadidja	13/07/2021

11. Funded Research Projects

[1] Polynômes extrémaux par rapport à des mesures variables et Algorithmes d'optimisation sans contraintes.

Period: Jan 1, 2010, three (03) years

Project No.: B01520090002

Guelma University, Algeria

[2] (PNR) Equations aux dérivées fractionnaires et leur traitement numérique par des méthodes spectrales.

Period: May 02, 2011, two (02) years

Contrat Programme n° 01 / 2011 en date du 08 Mai 2011

(Convention entre l'ANDRU et l'établissement ⁽¹⁾ Université de Sétif)

Université de Sétif

[3] Systèmes d'Evolution Abstraites d'Ordre Fractionnaires et Contrôles Optimales

Period: Jan 1, 2014, three (03) years

Project No.: B01520130027

Guelma University, Algeria

12. Posts

Deputy Head: Department of Management Sciences, Guelma University, for 2 academic years during 2006-2008.

Deputy Head: Department of Material Sciences, Guelma University, for 1 academic year during 2012-2013.

Member: Scientific Committee of Department of Mathematics, Guelma University, for 3 years during 2016-2019.

Expert: Regional Committee for University Qualification "Algerian East Universities", for 3 years during 2021-2024.

13. Visiting/Invited Professor

Invited for scientific collaborations to

- Alexandria University, Egypt
- Cankaya University, Turkey
- Chelyabinsk State University, Russia
- University of Aveiro, Portugal
- University of Santiago de Compostela, Spain
- Saint Petersburg Polytechnic University, Russia
- Comenius University in Bratislava, Slovakia
- Voronezh State University, Russia
- Polytechnic University of Valencia, Spain
- Belgorod State University, Russia
- Chechen State University, Russia
- Chechen State Pedagogical University, Russia

14. Other Professional Activities

Reviewer in:

- 01/ Mathematical Modelling and Analysis
- 02/ Computers & Mathematics with Applications
- 03/ Zeitschrift für Naturforschung A
- 04/ Advances in Difference Equations
- 05/ Mathematical Methods in the Applied Sciences
- 06/ Mathematical Reviews
- 07/ Advances in Dynamical Systems and Applications
- 08/ Mathematical Population Studies
- 09/ Numerical Functional Analysis and Optimization
- 10/ Mathematical and Computer Modelling
- 11/ Applied Mathematics and Computation
- 12/ Nonlinear Analysis: Hybrid Systems
- 13/ Inverse Problems in Science & Engineering
- 14/ Applied Mathematics Letters
- 15/ Electronic Journal of Differential Equations
- 16/ International Journal of Control
- 17/ Abstract and Applied Analysis
- 18/ British Journal of Mathematics & Computer Science
- 19/ Journal of Optimization Theory and Applications
- 20/ Electronic Journal of Qualitative Theory of
Differential Equations
- 21/ SIAM Journal on Numerical Analysis
- 22/ Boundary Value Problems
- 23/ Central European Journal of Physics
- 24/ Arab Journal of Mathematical Sciences
- 25/ Applicable Analysis
- 26/ Journal of Applied Mathematics and Computing
- 27/ Journal of Inequalities and Applications
- 28/ Journal of Nonlinear Evolution Equations and
Applications

15. International Membership

Center for Research and Development in Mathematics and Applications (CIDMA), Aveiro, Portugal

<http://cidma.mat.ua.pt/ma/organization.php>

The Lepage Research Institute (LRI), Praha, Czech Republic

<http://www.lepageri.eu/researchers>

16. International Experiences

Postdoctoral researcher at CIDMA–Center for Research and Development in Mathematics and Applications, Department of Mathematics, University of Aveiro, 3810-193 Aveiro, Portugal, under the supervision of Prof. Dr. Delfim F.M. Torres, for a period of six months from July 01, 2012 to December 31, 2012.

17. Editorial Experiences

Managing Guest Editor:

Journal of Computational and Applied Mathematics (ISI)

SI: LCMFDS 2019

<https://www.sciencedirect.com/science/article/pii/S0377042720306130>

SI: MFDSA 2017

<https://www.sciencedirect.com/journal/journal-of-computational-and-applied-mathematics/vol/339>

SI: ICMCMST 2015

<https://www.sciencedirect.com/journal/journal-of-computational-and-applied-mathematics/vol/312>

Guest Editor:

Mathematical Methods in the Applied Sciences (ISI)

SI: Time-Partial Differential Equations: Modelling and Simulation

<https://onlinelibrary.wiley.com/doi/10.1002/mma.7621>

SI: Biomathematics/Advanced Analysis in Pure & Applied Sciences

<https://onlinelibrary.wiley.com/toc/10991476/2018/41/18>

SI : Inverse Problems in Science and Engineering

<https://onlinelibrary.wiley.com/toc/10991476/2017/40/17>

Chaos, Solitons & Fractals (ISI)

SI: CSDRF 2019

<https://www.sciencedirect.com/journal/chaos-solitons-and-fractals/special-issue/10VV41V3CXS>

European Physical Journal Plus (ISI)

SI: Cancer & HIV/AIDS Dynamics: From Optimality to Modelling

<https://link.springer.com/article/10.1140/epjp/s13360-021-01154-z>

Frontiers in Physics - Mathematical Physics (ISI)

SI: New Methods and Techniques to Describe the Dynamics of Biological

Applications <https://www.frontiersin.org/research-topics/9273/new-methods-and-techniques-to-describe-the-dynamics-of-biological-applications>

Thermal Science (ISI)

<http://thermalscience.vinca.rs/2016/supplement-3>

<http://thermalscience.vinca.rs/2017/supplement>

International Journal of Difference Equations

http://campus.mst.edu/ijde/index_files/ijde81.htm

Editor:

Mathematical Methods in the Applied Sciences (ISI)

[http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1099-1476](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1099-1476)

Maejo International Journal of Science and Technology (ISI)

<https://mijst.mju.ac.th/board.htm>

Fractal and Fractional (ISI)

<http://www.mdpi.com/journal/fractalfract/editors>

Research in Mathematics (ISI)

<https://www.tandfonline.com/journals/oama23>

Mathematical Modelling and Control (ISI)

<https://www.aimspress.com/journal/mmc>

Journal of Mathematical Sciences (Scopus)

<https://link.springer.com/journal/10958>

International Journal of Dynamical Systems and Differential Equations (Scopus)

<http://www.inderscience.com/jhome.php?jcode=ijsde>

Progress in Fractional Differentiation and Applications (Scopus)

<http://naturalspublishing.com/show.asp?JorID=48&pgid=0>

Chelyabinsk Physical and Mathematical Journal (Scopus)

http://www.mathnet.ru/php/journal.phtml?jrnid=chfmj&option_lang=eng

Global and Stochastic Analysis (Scopus)

<http://www.mukpublications.com/gsa-editorial.php>

Stochastic Modelling & Computational Sciences (Scopus)

<https://romanpub.com/smcs.php>

Differential Equations & Applications

<http://dea.ele-math.com/editorial>

Mathematics in Natural Science

<http://www.isr-publications.com/mns/editorial-board-member>

Journal of Advances in Mathematics

<https://rajpub.com/index.php/jam>

International Journal of Innovations in Scientific and Engineering Research

<http://www.ijiser.com/editorinchief.php>

Communication in Mathematical Modeling and Applications

<https://ntmsci.com/cmms>

Electronic Journal of Applied Mathematics

<https://ejamjournal.com/index.php/ejam>

International Journal of Pure and Computational Mathematics

<http://sciencevier.com/international-journal-of-pure-and-computational-mathematics/>

18. Language

Arabic - English - French.