

Jean-Daniel DJIDA

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Citizen of Cameroon, born on Jan. 12, 1988

Main research interests

Nonlinear Analysis, Nonlocal operators and PDEs, Optimal control theory and Shape Optimization.

Education

PhD, Departamento de Análise Matemática, Universidade de Santiago de Compostela, Spain:

Thesis title: *Some nonlocal operators in porous medium equation : the extension problem and regularity theory*

Supervisors: *Prof. Juan José Nieto and Prof. Iván Area.*

2015–2019

MSc in Mathematics, African Institute of Mathematical Sciences (AIMS), Cameroon:

Thesis title: *Fractional Calculus and quantum mechanics*

Supervisors: *Prof. Juan José Nieto and Prof. Iván Area.*

(2014–2015)

MSc in Theoretical Physics, University of Ngaoundéré, Cameroon:

Thesis title: *Simulation of Quantum Images Recognition*

Supervisor: *Prof. Nana Engo .*

(2010–2013)

Awards and prizes

Postdoctoral fellow with DAAD Grant at African Institute of Mathematical Sciences (AIMS) Research Center, Cameroon: Working on Optimal control theory, Shape Optimization. (2019–Now)

African Institute of Mathematical Sciences Scholarship, Cameroon: Grant for Master program. 2014–2015

Employment

- **Teaching Assistant at African Institute of Mathematical Sciences (AIMS), Cameroon:** Organizing the academic program and to provide individual support in tutorials on (Differential Calculus, Real analysis, Functional analysis, Measure Theory & Probability, Optimal Control & Optimal Transport). (2015–2019)
- **Teacher, Sabongari secondary high school, Ngaoundéré, Cameroon:** Five months of full time teaching mathematics. (2012–2013)

Teaching experiences

- **Teaching Mathematical Analysis courses at Ecole Nationale Supérieure des Travaux Publics (ENSTP) in Yaounde (Cameroon):** Analysis I and Analysis II. (August, 2019)
- **Teaching the following refresher's courses at AIMS-Cameroon:** Real analysis, Functional analysis, Measure Theory & Probability. (November–December, 2018)

Publications

- [1] **J-D. Djida.**, *Wellposedness and boundary regularity for nonlocal parabolic problem with fractional derivative*, (submitted), (2019).
- [2] **J-D. Djida, Arran Fernandez and I. Area.**, *Well-posedness results for fractional semi-linear wave equations*, (submitted), (2019).
- [3] **J-D. Djida, I. Area and J. J. Nieto**, *A De Giorgi-Nash type theorem for nonlocal time porous medium equations*, (submitted), (2018).
- [4] **J-D. Djida, J. J. Nieto and I. Area**, *Nonlocal Time-Porous Medium Equation: Weak Solutions and Finite Speed of Propagation.*, *Discrete Continuous Dyn. Syst. Ser. B*, **22**:1, 2019.
- [5] **J-D Djida and Arran Fernandez**, *Interior Regularity Estimates for a Degenerate Elliptic Equation with Mixed Boundary Conditions.*, *Axioms*, **7**(3), 65, 1–16, (2018).
- [6] **J-D. Djida, J. J. Nieto, I. Area**, *Nonlocal time porous medium equation with fractional time derivative*, *Discrete Continuous Dyn. Syst. Ser. S*, in press, 2018.
- [7] **J-D. Djida and G. M. Mophou**, *Optimal control of diffusion equation with missing data governed by Dirichlet fractional Laplacian.*, <https://arxiv.org/pdf/1809.00917.pdf> (2018)
- [8] **J-D. Djida, G.M. Mophou, and I. Area**, *Optimal control of diffusion equation with fractional-time derivative with nonlocal and nonsingular Mittag-Leffler kernel.*, *J Optim Theory Appl*, 1–18, (2018).
- [9] **J-D. Djida, J. J. Nieto, I. Area**, *Parabolic problem with fractional time derivative with nonlocal and nonsingular Mittag-Leffler kernel*, *Discrete Continuous Dyn. Syst. Ser. S*, in press, (2018).
- [10] **P. A. Feulefack, J-D. Djida, Abdon Atangana**, *A New Model of Groundwater Flow Within an Unconfined Aquifer: Application of Caputo-Fabrizio Fractional Derivative*, *Discrete Continuous Dyn. Syst. Ser. B* **22**:1, (2019).
- [11] **J-D. Djida, Abdon Atangana**, *More generalized groundwater model with space-time Caputo Fabrizio fractional differentiation*, *Numerical Methods for Partial Differential Equations* DOI 10.1002/num, (2017).
- [12] **S. N. Kameni, J-D. Djida, Abdon Atangana**, *Modelling the movement of groundwater pollution with variable order derivative*, *J. Nonlinear Sci. Appl.*, **10** (2017), 5422–5432
- [13] **J-D. Djida, Abdon Atangana, and I. Area**. *Numerical computation of a fractional derivative with non-local and non-singular kernel*, *J Math. Model. Nat. Phenom.* Volume 12, Number 3, (2017).
- [14] **J-D. Djida, Abdon Atangana, I. Area**, *New numerical scheme of Atangana-Baleanu fractional integral: an application to groundwater flow within leaky aquifer*, <http://arxiv.org/abs/1610.08681v1> (2016).

- [15] **I. Area, J-D. Djida, J.Losada, and Juan J. Nieto**, *On Fractional Gram Orthogonal Polynomials*, Discrete Dynamics in Nature and Society (2015).
- [16] **G. Rigatos, E. Rigatou and J-D. Djida**, *Change detection in the dynamics of an intracellular protein synthesis model using nonlinear Kalman filtering*, Journal of Biological Physics-Springer Netherlands (2015).
- [17] **G. Rigatos, E. Rigatou and J-D. Djida**, *Detection of parametric changes in the Peyrard-Bishop-Dauxois model of DNA using nonlinear Kalman filtering*, Journal of Biological Physics-Springer Netherlands (2014). [doi: 10.1007/s10867-014-9366-8]

Invited talks and conferences

Department of mathematics (Analysis) Seminar,– Universidade de Aveiro, Portugal:
Weighted norm inequalities for fractional integral with general analytic kernels (Speaker) (June, 2019)

Seminar at the Departamento de Matemática Aplicada II,– Universidade de Vigo, Spain:
Weighted norm inequalities for fractional integral with general analytic kernels (Speaker) (June, 2019)

Department of mathematics (Analysis) Seminar,– Universidade de Santiago de Compostela, Spain:
Regularity of some fractional nonlocal parabolic equations (Speaker) (Mars, 2018)

Seminar at the Departamento de Matemática Aplicada II,– Universidade de Vigo, Spain:
Regularity for porous medium equation with fractional time derivative (Speaker) (February 21, 2018)

Aims-UB International Conference on Mathematics and its applications,– Buea, Cameroon:
Optimal control of diffusion equation with fractional derivative with nonlocal and nonsingular Mittag-Leffler kernel (Speaker) (December, 2017)

Aims-Cameroon Tuesdays Seminar,– Limbé, Cameroon:
Optimal control of diffusion equation with fractional nonlocal operator (Speaker) (November, 2017)

Advanced School/Workshop on Nonlocal Partial Differential Equations and Applications to Geometry, Physics and Probability, – Trieste, Italy:
 (Participant) (May,2017)

School on “Partial Differential Equations & Probability”,– Mbour, Senegal:
Hölder regularity of parabolic problem with fractional time derivative with non-local and Mittag-Leffler nonsingular kernel (Speaker) (November, 2016)

Aims-Cameroon Tuesdays Seminar,– Limbé, Cameroon:
Control of some nonlinear Systems (Speaker) (October, 2015)

Reviewing

Invited peer reviewer for the following journals:

- Journal of Inequalities and Applications
- Advances in Difference Equations (Springer)

Academic referees

- **Juan José Nieto** (Ph.D Avisor):
Departamento de Análise Matemática,
Universidade de Santiago de Compostela,
15782 Santiago de Compostela, Spain.
Email: juanjose.nieto.roig@usc.es
- **Professor Iván Area** (Ph.D Co-Avisor):
Departamento de Matemática Aplicada II
E.E. de Telecomunicación
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36310-Vigo, Spain.
Email: area@uvigo.es
- **Professor Gisèle Mophou**:
German Research Chair at the African Institute for Mathematical Sciences (AIMS-Cameroon),
Cristal Garden,
P.O.Box: 608. Limbe, Cameroon.
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- **Professor Mouhamet Moustapha Fall**:
German Research Chair at the African Institute for Mathematical Sciences (AIMS) of Senegal,
KM 2, Route de Joal,
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