ROBERTO DE A. CAPISTRANO–FILHO

Born	October 18, 1985, João Pessoa, Paraíba
Nationality	Brazilian
Address	Universidade Federal de Pernambuco
	Departamento de Matemática
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RESEARCH INTERESTS

General	Applied mathematics and PDEs
Emphasis	Well-posedness, control and stabilization of PDEs

PROFESSIONAL EXPERIENCE

Tenured - Assistant Professor	*Set 2018 - Current*	Department of Mathematics, Universidade Federal de Pernambuco, Brazil.
Postdoc	*Jan 2023 - Jul 2023*	Department of Mathematics, Virginia Tech, USA.
Assistant Professor	*Set 2015 - Set 2018*	Department of Mathematics, Universidade Federal de Pernambuco, Brazil.
Postdoc	*Mar 2014 - Nov 2015*	Department of Mathematical Sciences, University of Cincinnati, USA.

EDUCATION

Ph.D. in Mathematics — *2012–2014* — Université de Lorraine, France

Thesis: *Contrôle d'equations Dispersives pour les Ondes de Surfaces.*
Adviser 1: Prof. Lionel Rosier Adviser 2: Prof. Ademir Pazoto

Ph.D. in Mathematics — *2010–2014* — Universidade Federal do Rio de Janeiro, Brazil

Control of dispersive equations for surface waves.
Adviser 1: Prof. Ademir Pazoto Adviser 2: Prof. Lionel Rosier

M. Sc. in Mathematics — *2008–2010* — Universidade Federal da Paraíba, Brazil

Well-posedness and stability of Kawahara equation.
Adviser: Prof. Fagner Araruna

Bachelor degree — *2004–2008* — Universidade Federal da Paraíba, Brazil

B. Sc. in Mathematics.

AWARDS AND ACADEMIC DISTINCTIONS

Level-2 Researcher - CNPq, Brazil

EVALUATION COMMITTEES

MASTERS DEGREE

Oct 2021 Juan Ricardo Muñoz Galeano, Masters Degree in Mathematics, Universidade Federal de Pernambuco, Brazil.

Mar 2020 Nemuel Rocha Lima, Masters Degree in Mathematics, Universidade Federal de Alagoas, Alagoas, Brazil.

Apr 2017 Jose Ribeiro de Sousa Neto, Masters Degree in Mathematics, Universidade Federal da Paraíba, Brazil.

PHD DEGREE

Feb 2023 Luan Soares de Sousa, PhD in Mathematics, Universidade Federal de Pernambuco, Brazil.

Aug 2020 Milena Monique de Santana Gome, PhD in Mathematics, Universidade Federal de Pernambuco, Brazil.

Feb 2019 Charles Braga Amorim, PhD in Mathematics, Universidade Federal de Pernambuco, Brazil.

Mar 2018 Lorena Brizza Soares Freitas, PhD in Mathematics, Universidade Federal de Pernambuco, Brazil.

Feb 2017 Fernando Andres Gallego Restrepo, Ph.D. in Mathematics, Universidade Federal do Rio de Janeiro, Brazil.

Nov 2016 Pammela Queiroz de Souza, PhD in Mathematics, Universidade Federal da Paraíba, Brazil.

PHD QUALIFYING EXAMS

Set 2022 Jandeilson Santos da Silva, qualifying exams, Ph.D. in Mathematics, Universidade Federal de Pernambuco, Brazil.

Set 2022 Juan Ricardo Muñoz Galeano, qualifying exams, Ph.D. in Mathematics, Universidade Federal de Pernambuco, Brazil.

Jun 2021 Ricardo Freire da Silva, qualifying exams, Ph.D. in Mathematics, Universidade Federal de Pernambuco, Brazil.

Jun 2021 Jackellyny Dassy do Nascimento Carvalho, qualifying exams, Ph.D. in Mathematics, Universidade Federal de Pernambuco, Brazil.

Mar 2021 Nemuel Rocha, qualifying exams, Ph.D. in Mathematics, Universidade Federal de Alagoas, Brazil.

Jul 2020 Luan Soares de Sousa, qualifying exams, Ph.D. in Mathematics, Universidade Federal de Pernambuco, Brazil.

Jul 2020 Marcos Paulo da Rocha, qualifying exams, Ph.D. in Mathematics, Universidade Federal de Pernambuco, Brazil.

Dec 2018 André Ventura Henriques dos Santos, qualifying exams, Ph.D. in Mathematics, Universidade Federal de Pernambuco, Brazil.

Aug 2018 Larissa Santos Machado, qualifying exams, Ph.D. in Mathematics, Universidade Federal de Pernambuco, Brazil.

Mar 2018 Francisco Gilberto de Souza, qualifying exams, Ph.D. in Mathematics, Universidade Federal de Alagoas, Brazil.

May 2017 Omar Stevenson Guzmán Rea, qualifying exams, Ph.D. in Mathematics, Universidade Federal de Pernambuco, Brazil.

Aug 2016 Charles Braga Amorim, qualifying exams, Ph.D. in Mathematics, Universidade Federal de Pernambuco, Brazil.

SELECTION COMMITTEES

Mar 2019 R. A. Capistrano–Filho, A. Corcho and M. Panthee, public selection of professors for Department of Mathematics, 2019, Universidade Federal de Alagoas, Brazil.

Nov 2018 R. A. Capistrano–Filho, D. J. Araujo and M. A. Soares, public selection of professors for Department of Mathematics, 2018, Universidade Federal de Pernambuco, Brazil.

Mar 2018 R. A. Capistrano–Filho, F. W. Cruz and R. T. Bortolloti, public selection distance learning tutors, 2018, Universidade Federal de Pernambuco, Brazil.

Mar 2018 J. Angulo, E. Barbosa and R. A. Capistrano–Filho, visiting professor, Universidade Federal de Alagoas, Brazil.

May 2018 R. A. Capistrano–Filho, K. I. M. Oliveira and F. M. A. Vitorio, public selection of assistant professor, 2018, Universidade Federal de Alagoas, Brazil.

LIST OF PUBLICATIONS

29. R. A. Capistrano-Filho and A. Pampu, Control results for a model of resonant interaction between short and long capillary-gravity waves, Nonlinear Differential Equations and Applications (NoDEA), to appear.

28. R. A. Capistrano-Filho, L. S. de Sousa and F. A. Gallego, Control of Kawahara equation with overdetermination condition: The unbounded cases, Mathematical Methods in the Applied Sciences, doi.org/10.1002/mma.9368.

27. R. A. Capistrano-Filho and V. H. Gonzalez Martinez, Stabilization results for delayed fifth-order KdV-type equation in a bounded domain, Mathematical Control, and Related Fields, 10.3934/mcrf.2023004.

26. R. A. Capistrano-Filho and I. M. de Jesus, Massera's theorems for a higher order dispersive system, Acta Applicandae Mathematicae, 185, 5 (2023).

25. R. A. Capistrano-Filho, E. Cerpa and F. Gallego, Rapid Exponential Stabilization of a Boussinesq System of KdV–KdV Type, Communications in Contemporary Mathematics, Vol. 25, No. 03, 2150111 (2023).

24. R. A. Capistrano-Filho and A. Gomes, Global control aspects for long waves in nonlinear dispersive media, ESAIM: Control, Optimisation, and Calculus of Variations, 29:7 (2023), 1-47.

23. R. A. Capistrano-Filho, B. Chentouf, L. de Sousa and V. H. Gonzalez Martinez, Two stability results for the Kawahara equation with a time-delayed boundary control, Zeitschrift für Angewandte Mathematik und Physik, 74, 16, (2023), 1-26.

22. R. A. Capistrano-Filho, M. Cavalcante and F. A. Gallego, Controllability for Schrödinger type system with mixed dispersion on compact star graphs, Evolution Equations & Control Theory, 12(1) (2023), 1-19.

21. R. A. Capistrano-Filho, C. Kwak and F. J. Vielma Leal, On the control issues for higher-order nonlinear dispersive equations on the circle, Nonlinear Analysis: Real World Applications, 68:103695, (2022).

20. R. A. Capistrano-Filho and A. Pampu, The fractional Schrödinger equation on compact manifolds: Global controllability results, Mathematische Zeitschrift, 301, pages 3817–3848 (2022)

19. R. A. Capistrano-Filho, M. Cavalcante and F. A. Gallego, Forcing operators on star graphs applied for the cubic fourth order Schrödinger equation, Discrete & Continuous Dynamical Systems – B, 27(6) (2022), 3399-3434.

18. R. A. Capistrano-Filho and L. S. de Sousa, Control results with overdetermination condition for higher order dispersive system, Journal of Mathematical Analysis and Applications 506(1) (2022), 1-22.

17. R. A. Capistrano-Filho, Weak damping for the Korteweg-de Vries equation, Electron. J. Qual. Theory Differ. Equ. No. 43 (2021), 1-25.

16. R. A. Capistrano-Filho and M. Cavalcante, Stabilization and control for the biharmonic Schrödinger equation, Appl. Math. Optim. 84 (2021), 103-144.

15. R. A. Capistrano-Filho and M. M. de S. Gomes, Well-posedness and controllability of Kawahara equation in weighted Sobolev spaces, Nonlinear Analysis, Volume 207 (2021), 1-24.

14. R. de A. Capistrano-Filho, M. Cavalcante and F. A. Gallego, Lower regularity solutions of the biharmonic Schrödinger equation in a quarter plane, Pacific Journal of Mathematics, 309-1 (2020), 35-70.

13. R. A. Capistrano-Filho, V. Komornik, and A. F. Pazoto, Pointwise control of the linearized Gear–Grimshaw system, Evolution Equations & Control Theory, 9(3) (2020), 693-719.

12. R. A. Capistrano-Filho, S.-M. Sun and B.-Y. Zhang, Initial boundary value problem for Korteweg-de Vries equation: a review and open problems, São Paulo Journal of Mathematical Sciences, (2019) 13:402-417. Special Section: Nonlinear Dispersive Equations.

11. R. A. Capistrano-Filho, A. F. Pazoto, and L. Rosier, Control of Boussinesq system of KdV-KdV type on a bounded interval, ESAIM Control Optimization and Calculus Variations 25 (2019) 58, 1-55.

10. R. A. Capistrano-Filho, F. A. Gallego and A. F. Pazoto, On the well-posedness and large-time behavior of higher order Boussinesq system, Nonlinearity 32 (2019) 1852–1881.

9. R. A. Capistrano-Filho, S.-M. Sun and B.-Y. Zhang, General boundary value problems of the Korteweg-de Vries equation on a bounded domain, Mathematical Control & Related Fields (2018) 8 (3-4), 583-605.

8. R. A. Capistrano-Filho and F. Gallego, Asymptotic behavior of Boussinesq system of KdV-KdV type, J. Differential Equations 265 (2018) 2341–2374.

7. R. A. Capistrano-Filho, Stabilization of the Gear–Grimshaw system with weak damping, J Dyn Control Syst (2018) 24: 145.

6. M. C. Caicedo, R. A. Capistrano-Filho and B.-Y. Zhang, Neumann boundary controllability of the Korteweg-de Vries equation on a bounded domain, SIAM Journal on Control and Optimization, v. 55, p. 3503–3532, 2017.

5. R. A. Capistrano-Filho, F. Gallego and A. F. Pazoto, Boundary controllability of the nonlinear coupled system of two Korteweg-de Vries equations with critical size restrictions on the spatial domain, Math. Control Signals Syst. (2017) 29:6.

4. R. A. Capistrano-Filho, F. Gallego and A. F. Pazoto, Neumann boundary controllability of the Gear-Grimshaw system with critical size restrictions on

the spatial domain, Zeitschrift fur Angewandte Mathematik und Physik (Printed ed.), v. 67 (2016), p. 109.

3. R. A. Capistrano-Filho, A. Pazoto, and L. Rosier, Internal controllability for the Korteweg-de Vries equation on a bounded domain, ESAIM: COCV 21 (2015) 1076–1107.

2. R. A. Capistrano-Filho, V. Komornik and A. Pazoto, Stabilization of the Gear-Grimshaw system on a periodic domain, Communications in Contemporary Mathematics 16 (2014) 1–22.

1. F. D. Araruna, R. A. Capistrano-Filho, and G. Doronin, Energy decay for the modified Kawahara equation posed in a bounded domain, Journal of Mathematical Analysis and Applications 385 (2012) 743–756.

ADVISING AND SUPERVISION

POST-DOCTORAL SUPERVISION

2021-2022 Victor Hugo Gonzalez Martinez - Universidade Federal de Pernambuco.

2020-2021 Andressa Gomes - Universidade Federal de Pernambuco.

2019-2021 Ademir Benteus Pampu - Universidade Federal de Pernambuco.

PHD STUDENTS

2021-Current Jandeilson Santos da Silva - expected 2025 - Universidade Federal de Pernambuco.

2021-Current Juan Ricardo Muñoz Galeano - expected 2025 - Universidade Federal de Pernambuco.

2019-Current Isadora Maria de Jesus - expected 2023 - Universidade Federal de Pernambuco.

2019-2023 Luan Soares - Some control results for the KdV-type equations - Universidade Federal de Pernambuco.

2016-2020 Milena Monique de Santana Gomes - Well-posedness and controllability of Kawahara equation in weighted Sobolev spaces - Universidade Federal de Pernambuco.

MASTERS STUDENTS

2022-Current Érick Caetano Alves do Nascimento - Controllability for parabolic type systems - expected 2024 - Universidade Federal de Pernambuco

2022-Current Jefferson Henriques Bezerra - Controllability for dispersive systems - expected 2024 - Universidade Federal de Pernambuco

2020-2021 Juan Ricardo Muñoz Galeano - Well-posedness and controllability of the KdV-KdV type system- Universidade Federal de Pernambuco.

2016-2018 Hugo Deleon Pereira de Medeiros - Stabilization for a coupled system of KdV-KdV type system - Universidade Federal de Pernambuco.

2016-2018 Elthon Matheus Araújo - Well-posedness, controllability, and stabilization of KdV equation on the periodic domain - Universidade Federal de Pernambuco.

UNDERGRADUATE STUDENTS

2021-Current Raffael Marinho de Arruda Feitosa - ODEs and applications in control theory - Universidade Federal de Pernambuco.

2021-2022 Daniel Alves de Lima - ODEs and some application in Control theory - Universidade Federal de Pernambuco.

2021-2021 Daniel Alves de Lima - Control theory for PDEs- Universidade Federal de Pernambuco.

2020-2021 Guilherme Araújo - ODEs and applications in control theory - Universidade Federal de Pernambuco.

2020-2021 Mateus Ferreira de Melo - Control theory and PDEs - Universidade Federal de Pernambuco.

2019-2020 Mateus Ferreira de Melo - Measure and integration - Universidade Federal de Pernambuco.

2018-2019 Mateus Ferreira de Melo - Functional analysis and applications - Universidade Federal de Pernambuco.

2018-2019 Rafael Marques Cavalcante Neto - Control theory applied in ODEs- Universidade Federal de Pernambuco.

2017-2018 Mateus Ferreira de Melo - Control theory applied in ODEs - Universidade Federal de Pernambuco.

RESEARCH GRANTS

Sep. 2023 – Nov. 2024 · *Problemas de valores de contorno de sistemas dispersivos e suas aplicações em dinâmica dos fluidos - Grant: 6.080,00 Brazilian real*
Agency: Fundação do Amparo a Ciência e Tecnologia (FACEPE-Fundação de Amparo a Ciência e Tecnologia de PE

Sep. 2022 – Set. 2024 · *Initial boundary value problems of dispersive systems and their applications to fluid dynamics - Grant: 39.600,00 Brazilian real*
Agency: National Council for Scientific and Technological Development

Sep. 2022 – Feb. 2025 · *Initial boundary value problems for dispersive equations and applications to fluid dynamics problems - Grant: 139.815,44 Brazilian real*
Agency: National Council for Scientific and Technological Development

Set. 2022 – Set. 2024 · *Initial boundary value problems of dispersive systems and their applications to fluid dynamics - Grant: 39.600,00 Brazilian real*
Agency: National Council for Scientific and Technological Development

Aug. 2021 – Jul. 2022 · *Controlability properties for hyperbolic and dispersive systems (BFP) - Grant: 55.200,00 Brazilian real - Post-doctoral supervision: Victor Hugo Gonzalez Martinez*
Agency: Fundação de Amparo a Ciência e Tecnologia do Estado de Pernambuco

Jan. 2021 – Dec. 2023 · *Control Theory and Microlocal Analysis with Applications in Partial Differential Equations (MathAmSud) - Grant: 175.000,00 Brazilian real*
Agency: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior

May. 2020 – Apr. 2021 · *Well-posedness, control and asymptotic behavior for non-linear dispersive systems (INCTMat) - Grant: 50.400,00 Brazilian real - Post-doctoral supervision: Andressa Gomes*
Agency: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior

Mar. 2019 – Feb. 2021 · *Asymptotic behavior and control properties for nonlinear dispersive systems - Grant: 20.000,00 Brazilian real*
Agency: National Council for Scientific and Technological Development

Mar. 2018 – Feb. 2021 · *Well-posedness, control, and stabilization for non-linear dispersive systems - Grant: 39.600,00 Brazilian real*

Agency: National Council for Scientific and Technological Development

Mar. 2018 – Feb. 2021 · *Well-posedness, control, and stabilization for non-linear dispersive systems - Grant: 39.600,00 Brazilian real*
Agency: National Council for Scientific and Technological Development

Nov. 2018 – Out. 2019 · *Boa colocação, controle e estabilização para modelos dispersivos - Grant: 7.300,00 Brazilian real*
Agency: Fundação do Amparo a Ciência e Tecnologia (FACEPE-Fundação de Amparo a Ciência e Tecnologia de PE

Aug. 2016 – Jul. 2017 · *Boa colocação, controle e Estabilização para modelos dispersivos - Grant: 4.400,00 Brazilian real*
Agency: Fundação do Amparo a Ciência e Tecnologia (FACEPE-Fundação de Amparo a Ciência e Tecnologia de PE

Jan. 2015 – Jan. 2016 · *Controle e estabilização para uma classe de modelos dispersivos - Grant: 4.400,00 Brazilian real*
Agency: Fundação do Amparo a Ciência e Tecnologia (FACEPE-Fundação de Amparo a Ciência e Tecnologia de PE

OTHER INFORMATION

Scientific Visits

- Universidad Nacional de Colombia - Sede Manizales, Colombia.
- Universidad Del Valle, Cali, Colombia.
- Universidadade Federal de Minas Gerais, Minas Gerais, Brazil.
- Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil.
- Universidade Federal de Alagoas, Maceió, Brazil.
- University of Cincinnati, USA.
- Virginia Tech, USA.
- Sichuan International Studies University, China.
- Université de Strasbourg, France.
- Université de Lorraine, France.

ORGANIZATION OF EVENTS

Mar 2021 Mini-symposium on Recent developments in partial differential equations and applications at SIAM Southeastern Atlantic Section Annual Meeting - Blacksburg - Virginia - USA.

Mar 2023 Recife Summer Workshop on Differential Geometry - Recife - Pernambuco - Brazil.

Feb 2023 I Symposium of Nonlinear Partial Differential Equations at UFPE - Recife - Pernambuco - Brazil.

Jan 2023 Special section "Control and Stabilization for Partial Differential Equations" on LACIAM - Rio de Janeiro - Rio de Janeiro - Brazil.

Jun 2021 III Summer Workshop of PDEs and Dynamical Systems - Recife - Pernambuco - Brazil.

Feb 2020 II Summer Workshop of PDEs and Dynamical Systems - Recife - Pernambuco - Brazil.

Feb 2020 I Summer Workshop of Geometry - Brazil.

Jan 2020 Summer Course of Graduate Students - Recife - Pernambuco - Brazil.

Feb 2019 I Summer Workshop of PDEs and Dynamical Systems - Recife - Pernambuco - Brazil.

Oct 2018 Colóquio Pernambucano de Matemática - Recife - Pernambuco - Brazil.

Feb 2017 Recife Workshop on Control and Stabilization of PDEs - Recife - Pernambuco - Brazil.

SELECTED COMMUNICATIONS AND LECTURES

Nov 2022 Invited Speaker, V Workshop on Nonlinear Dispersive Equations - *Bourgain space and its applications in Control Theory* - Minas Gerais - Brazil.

Nov 2019 Invited Speaker, 4th Workshop on Nonlinear Dispersive Equations 2019 - *Well-posedness of the fourth order nonlinear Schr ödinger equation in non-standard domains* - Rio de Janeiro - Brazil.

Jul 2019 Invited Speaker, 1st Joint Meeting Brazil-France in Mathematics 2019 - *Stability and Global Questions for Biharmonic Schrödinger Equation* - Rio de Janeiro - Brazil.

Dec 2018 Invited Speaker, Workshop on Inverse and control problems for physical systems ICoPS 2018 - *Properties of the biharmonic nonlinear Schrodinger equation* - Valparaíso - Chile.

Aug 2018 Short communication, ICM - *Global results on control and stabilization of fourth order NLS on* $\mathbb{T}$ - Rio de Janeiro - Rio de Janeiro - Brazil.

Jul 2015 Invited Speaker, Theoretical, Numerical and Experimental Studies of Nonlinear Dispersive Water Waves - *Internal controllability results of the Korteweg-de Vries equation* - Tsinghua Sanya International Mathematics Forum - Sanya - China.

Jan 2015 Invited Speaker, Workshop on Control System and Identification Problems - *Boundary controllability of the Korteweg-de Vries equation* - Valparaíso - Chile.

Oct 2014 Short communication, The 34th Southeastern Atlantic Regional Conference on Differential Equation - *Some control results for the Boussinesq system of KdV-KdV type* - University of Memphis. Memphis - USA.

REFERENCES

Prof. Lionel Rosier
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Centre Universitaire de la Mi-Voix
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CS 80699 -62228 Calais Cedex, France
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Prof. Ademir F. Pazoto
Universidade Federal do Rio de Janeiro, Instituto de Matemática
Cidade Universitária, Ed. Centro de Tecnologia, Bloco C - sala 111B
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July 7, 2023