ROBERTO DE A. CAPISTRANO–FILHO

Born	October 18, 1985. João Pessoa, Paraíba
Nationality	Brazilian
Address	Avenida Professor Luiz Freire S/N
	Cidade Universitária 50740545 - Recife, PE - Brazil
email	roberto.capistranofilho@ufpe.br
website	http://www.ufpe.br/capistranofilho
phone	(+5581) 9 8113 1885

RESEARCH INTERESTS

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

PROFESSIONAL EXPERIENCE

Assistant Professor — *Since 2015* — DEPARTMENT OF MATHEMATICS, UNIVERSIDADE FEDERAL DE PERNAMBUCO, BRAZIL.

Tenured since 2018 — DEPARTMENT OF MATHEMATICS, UNIVERSIDADE FEDERAL DE PERNAMBUCO, BRAZIL.

Postdoc — *Mar 2014 - Nov 2015* — DEPARTMENT OF MATHEMATICAL SCIENCES, UNIVERSITY OF CINCINNATI, USA.

Postdoc — *Jan 2023 - Jul 2023* — DEPARTMENT OF MATHEMATICAL, VIRGINIA TECH, 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

2022-2025	Level-2 Researcher - CNPq, Brazil
2022	Chebyshev grant - ICM St. Petersburg, International Mathematical Union
2018-2021	Level-2 Researcher - CNPq, Brazil

2018 Open arms grant - ICM Rio de Janeiro, IMPA - SBM

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, Brazil.

Mar 2018 Elthon Matheus Araújo, Universidade Federal de Pernambuco, Brazil.

Mar 2018 Hugo Deleon Pereira de Medeiros, Universidade Federal de Pernambuco, Brazil.

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

PHD DEGREE

Aug 2023 Isadora Maria de Jesus, PhD in Mathematics, Universidade Federal de Pernambuco, Brazil.

Aug 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.

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, PhD 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, PhD in Mathematics, Universidade Federal de Pernambuco, Brazil.

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

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

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

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

Jul 2020 Luan Soares de Sousa, qualifying exams, PhD in Mathematics, Universidade

Federal de Pernambuco, Brazil.

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

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

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

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

May 2017 Omar Stevenson Guzmán Rea, qualifying exams, PhD 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

32. R. A. Capistrano-Filho, V. H. Gonzalez Martinez and J. R. Muñoz, Stabilization of the Kawahara-Kadomtsev-Petviashvili equation with time-delayed feedback, to appear Proceedings of the Royal Society of Edinburgh Section A: Mathematics, 1-27. doi:10.1017/prm.2023.92

31. R. A. Capistrano-Filho and V. H. Gonzalez Martinez, Stabilization results for delayed fifth-order KdV-type equation in a bounded domain, to appear Math. Control Relat. Fields. https://doi.org/10.3934/mcrf.2023004

30. R. A. Capistrano-Filho, B. Chentouf, and Isadora de Jesus, Dynamic stability of the Kawahara equation under the effect of a boundary finite memory, Qual. Theory Dyn. Syst. 23, 28 (2024).

29. R. A. Capistrano-Filho, I. M. de Jesus and V. H. Gonzalez Martinez, Infinite memory effects on the stability of Biharmonic Schrödinger equation, Electron. J. Qual. Theory Differ. Equ., No. 39, (2023) 1-23.

28. R. A. Capistrano-Filho, L. S. de Sousa and F. A. Gallego, Control of Kawahara equation with overdetermination condition: The unbounded cases, Math. Meth. Appl. Sci. 46 (2023), 15162-15185.

27. R. A. Capistrano-Filho and A. Pampu, Control results for a model of resonant interaction between short and long capillary-gravity waves, Nonlinear Differ. Equ. Appl. 30, 61 (2023).

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

2022- Jandeilson Santos da Silva - expected to 2025 - Universidade Federal de Pernambuco.

2022- Juan Ricardo Munoz Galeano - expected to 2024 - Universidade Federal de Pernambuco.

2019-2023 Isadora Maria de Jesus - Well-posedness and stabilization theory for dispersive systems - Universidade Federal de Pernambuco.

2019-2023 Luan Soares - Some control results for the KdV-type equation - 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- Érick Caetano Alves do Nascimento - expected to 2024 - Universidade Federal de Pernambuco.

2022- Jefferson Henriques Bezerra - expected to 2024 - Universidade Federal de Pernambuco.

2020-2022 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

2022-2023 Raffael Marinho de Arruda Feitosa - ODEs and applications - Universidade Federal de Pernambuco.

2021-2022 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

2022 – 2025 · *Well-posedness, control, and stabilization for non-linear dispersive systems - Grant: 59.400,00 Brazilian real*
Agency: National Council for Scientific and Technological Development

2021 – 2022 · *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

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

2018 – 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

OTHER INFORMATION

Scientific Short Visits

- Universidad de Chile, Santiago, Chile.
- 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.
- Sichuan International Studies University, SISU, China.
- Université de Strasbourg, UNISTRA, France.

ORGANIZATION OF EVENTS, SYMPOSIUM AND SECTIONS

Mar 2023 Mini-symposium on Recent developments on 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 - 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.

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.

Nov 2023 Invited Speaker, Twelfth Ohio River Analysis Meeting 2023 - *Fourier transform restriction phenomena and applications to control of dispersive equations* - Cincinnati - USA.

Nov 2022 Invited Speaker, 5th Workshop on Nonlinear Dispersive Equations 2022 - *Bourgain space and its applications in Control Theory* - Belo Horizonte - Brazil.

Nov 2019 Invited Speaker, 4th Workshop on Nonlinear Dispersive Equations 2019 - *Well-posedness of the fourth order nonlinear Schrödinger 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.

Feb 2019 Short communication, ICMC Summer Meeting on Differential Equations - *Properties of the biharmonic nonlinear Schrödinger equation* - São Carlos - São Paulo - 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.

Dec 2017 Short communication, ICAMI - *Critical Length Phenomenon For a Class of Dispersive Systems* - San Andres - Colombia.

Jun 2016 Short communication, Nonlinear PDE's @ IMPA - *Neumann boundary controllability of the Korteweg-de Vries equation* - 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
Université du Littoral Côte d'Opale
Centre Universitaire de la Mi-Voix
50 rue F. Buisson
CS 80699 -62228 Calais Cedex, France
email: Lionel.Rosier@univ-littoral.fr

Prof. Vilmos Komornik
Département de Mathématique
Université de Strasbourg - 7 rue René Descartes
67084 Strasbourg Cedex, France
email: vilmos.komornik@math.unistra.fr

Prof. Ademir F. Pazoto
Universidade Federal do Rio de Janeiro, Instituto de Matemática
Cidade Universitária, Ed. Centro de Tecnologia, Bloco C - sala 111B
Ilha do Fundão 21945-970 - Rio de Janeiro, RJ - Brasil
email: ademir@im.ufrj.br

Prof. Bingyu Zhang
Department of Mathematical Sciences, University of Cincinnati
2815 Commons Way - French Hall West
Cincinnati, OH - 45221 United States
email: zhangb@ucmail.uc.edu

Prof. Shu-Ming Sun
Department of Mathematics
460 McBryde Hall, Virginia Tech
225 Stanger Street
Blacksburg, VA 24061-1026 email: sun@math.vt.edu

November 15, 2023