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Felipe W. Chaves-Silva

Current Position

- Assistant Professor 2018 –
Department of Mathematics
Federal University of Paraíba – UFPB
João Pessoa - Paraíba - Brazil

Past Position

- Assistant Professor 2016 – 2018
Department of Mathematics
Federal University of Pernambuco– UFPE
Recife - Pernambuco - Brazil

Education

- Postdoc 2014 – 2016
Supervisor: Gilles Lebeau
Université de Nice Sophia-Antipolis, Nice, France
- Ph.D. in Mathematics 2010 – 2014
Advisor: Enrique Zuazua
University of the Basque Country & Basque Center for Applied Mathematics - BCAM, Bilbao, Spain
Thesis: *About the Controlability of Some Equations in Cardiology, Biology, Fluid Mechanics, and Viscoelasticity*

- M.Sc. in Mathematics 2007- 2009
 Advisor: Fágner Dias Araruna
 Federal University of Paraíba - UFPB, Brazil
 Master Thesis: *Controlabilidade para o Sistema de Navier-Stokes* (Controllability for the Navier-Stokes equation),
- B.Sc. in Mathematics 2004 - 2007
 Advisor: Marcondes Rodrigues Clark
 Federal University of Piauí - UFPI, Brazil

Publications

1. F. W. Chaves-Silva, S. Guerrero, *A controllability result for a Chemotaxis-Fluid Model*, Journal of Differential Equations, 262 (9)(2017), 4863–4905.
2. F. W. Chaves-Silva, X. Zhang, E. Zuazua, *Controllability of evolution equations with memory*, SIAM Journal on Control and Optimization, **55** (4)(2017), 2437–2459.
3. F. W. Chaves-Silva, G. Lebeau, *Spectral inequality and optimal cost of controllability for the Stokes system*, ESAIM: COCV, Special Issue in honor of Jean-Michel Coron for his 60th birthday, **22** (4)(2016), 1137-1162.
4. M. Bendahmane, F. W. Chaves-Silva, *Uniform Null Controllability for a Degenerating Reaction-Diffusion System Approximating a Simplified Cardiac Model*, SIAM Journal on Control and Optimization, **53** (6)(2015), 3483–3502.
5. F. W. Chaves-Silva, S. Guerrero, *A uniform controllability result for the Keller-Segel system*, Asymptot. Anal., **92** (3-4)(2015), 313–338.
6. F. W. Chaves-Silva, *A hyperbolic system and the cost of the controllability for the Stokes system*, Comput. Appl. Math., **34** (3)(2015), 1057–1074.
7. F. W. Chaves-Silva, L. Rosier, E. Zuazua, *Null controllability of a system of viscoelasticity with a moving control*, J. Math. Pures Appl., **9** 101 (2)(2014), 198–222.
8. F. W. Chaves-Silva, S. Guerrero, J.-P. Puel, *Controllability of fast diffusion coupled parabolic systems*, Math. Control Relat. Fields, **4** (4)(2014), 465–479.
9. M. Bendahmane, F. W. Chaves-Silva, *Null Controllability of a Degenerate reaction-diffusion system in cardiac electro-phisyology*, C. R. Math. Acad. Sci. Paris, **350** (11-12)(2012), 587–590.
10. F. D. Araruna, F. W. Chaves-Silva, M. A. Rojas-Medar, *Exact Controllability of Galerkin's Approximations of Micropolar Fluids*, Proc. Amer. Math. Soc., **138** (2010), 1361–1370.

Preprints

- F. W. Chaves-Silva, M. C. Santos, J. -P. Puel, *Boundary Null controllability as the limit of Internal Controllability: the heat case* (preprint).
- F. W. Chaves-Silva, M. C. Santos, J. -P. Puel *Localization of energy and localized controllability* (preprint).
- F. W. Chaves-Silva, D. A. Souza, *On the null controllability of some equations of Sobolev-Galpern type* (preprint).
- F. W. Chaves-Silva, D. A. Souza, C. Zhang, *Observability Inequalities on Measurable sets for the Stokes system and Applications* (preprint).
- F. W. Chaves-Silva, C. Sun, *On the Stabilization of a hyperbolic Stokes System under geometric control condition* (preprint)

Research Stays

- Laboratoire Jacques-Louis Lions, Université Pierre et Marrie Curie (Paris 6), 21/ 01/2019 to 25/01/2019 (1 week).
- Institute Mathematique de Toulouse, Toulouse, France, 14/01/2019 to 18/01/2019 (1 week).
- Departamento de Matemáticas, Universidad Federico Santa Maria, Chile, 22/10/2018 to 26/10/2018 (1 week).
- Departamento de Matemáticas, Universidad Nacional de Colombia, sede Manizales, 24/09/2018 to 06/10/2018 (2 weeks).
- Departamento de Matemáticas, Universidad Federico Santa Maria, Chile, 09/01/2016 to 23/09/2016 (2 weeks).
- Laboratoire de Mathématiques et Dynamique de Populations, Université Cadi Ayyad, Marrakech, Marocos, 07/12/2015 to 20/12/2015 (2 weeks).
- Laboratoire Jacques-Louis Lions, Université Pierre et Marrie Curie (Paris 6), 07/ 07/2015 to 09/07/2015 (1 week).
- Laboratoire Jacques-Louis Lions, Université Pierre et Marrie Curie (Paris 6), 27/ 05/2015 to 05/06/2015 (2 weeks).
- Laboratoire Jacques-Louis Lions, Université Pierre et Marrie Curie (Paris 6), 14/ 04/2015 to 21/04/2015 (1 week).

- Yangtze Center of Mathematics, Sichuan University, Chengdu, China, 04/26/2014 to 06/01/2014 (5 weeks).
- Laboratoire J.A. Dieudonné, Université de Nice Sophia-Antipolis, Nice, 03/19/2014 to 03/21/2014 (1 week).
- Laboratoire Jacques-Louis Lions, Université Pierre et Marrie Curie (Paris 6), 01/ 28/2014 to 02/28/2014 (1 month).
- Laboratoire Jacques-Louis Lions, Université Pierre et Marrie Curie (Paris 6), 09/ 15/2013 to 12/15/2013 (3 months).
- Laboratoire Jacques-Louis Lions, Université Pierre et Marrie Curie (Paris 6), 11/ 12/2012 to 11/16/2012 (1 week).
- Departamento de Ecuaciones Diferenciales y Análisis Numérico, Universidad de Sevilla, 11/ 26/2012 to 11/30/2012 (1 week).
- Laboratoire Jacques-Louis Lions, Université Pierre et Marrie Curie (Paris 6), 11/ 28/2011 to 12/02/2011 (1 week).

Conferences Organized

- IV Brazilian Conference for Young Researchers, 2020.
- 8 WENLU, Workshop in Nonlinear Analysis and Geometric PDE's, 2019
- Recife Workshop on Control and Stabilization of PDEs, 2017.

Theses and Master's Committees

- *Title:* Alguns problemas de controle para modelos parabólicos: controles insensibilizantes e controlabilidade nula uniforme (Ph.D. thesis).

Candidate: Thiago Y. Tanaka.

University: Universidade Federal de Pernambuco, 2018.

Committee: F. W. Chaves-Silva, M. C. Santos, F. D. Araruna, D. A. Souza, A. F. Pazoto.

- *Title:* Estabilização para um sistema acoplado tipo KdV-KdV (Master in Mathematics).

Candidate: Hugo Deleon Pereira de Medeiros.

University: Universidade Federal de Pernambuco, 2018.

Committee: F. W. Chaves-Silva, M. Cavalcante, R. A. Capistrano-Filho.

- *Title:* Controle Hierárquico via Stackelberg-Nash para Controlabilidade de Sistemas Parabólicos e Hiperbólicos (Ph.D. in Mathematics).
Candidate: Luciano Cipriano da Silva.
University: Universidade Federal da Paraíba.
Committee: F. W. Chaves-Silva, F. D. Araruna, D. J. G. Araújo, E. Fernández-Cara, J. Límaco, J. M. C. Santos.
- *Title:* Um Índice de somabilidade para Operadores entre Espaços de Banach (Ph.D. in Mathematics).
Candidate: Mariana de Brito Maia.
University: Universidade Federal da Paraíba, 2017.
Committee: F. W. Chaves-Silva, D. M. Pellegrino, J. S. Santos, N. A. G. E. Albuquerque, M. P. Rueda, G. S. Araújo, D. N. Alarcón.
- *Title:* Controlabilidade, problema inverso, problema de contato e estabilidade para alguns sistemas hiperbólicos e parabólicos (Ph.D. in Mathematics)
Candidate: Gilcênio Rodrigues de Sousa Neto.
University: Universidade Federal da Paraíba, 2016.
Committee: F. W. Chaves-Silva, F. D. Araruna, A. T. Louredo, D. A. Souza, M. G. Burgos, P. G. Braz e Silva.

Talks

- “*Controllability of PDE’s with large parameters*”, 1st joint meeting Brazil-France in Mathematics, IMPA, Rio de Janeiro, July -2019.
- “*Controllability of PDE’s with large parameters*”, Workshop Inverse and Control problems for physical systems - ICoPs, Valparaíso, Chile, December - 2018.
- “*Spectral Inequality and the cost of the controllability for the Stokes system*”, III Brazilian Congress for Young Researchers, Curitiba, Brazil, December - 2018.
- “*Boundary controllability as the limit of internal controllability for the heat equation*”, Young Researchers in Control Workshop, Les Salles du Verdon (France), July-2018.
- “*Controllability for some pseudo-parabolic equations*”, Int. Congress on Applied Math and Informatics - ICAMI, San Andrés, Colombia, December - 2017
- “*Spectral Inequality and the cost of the controllability for the Stokes system*”, 5th Workshop on Analysis and PDEs, Federal University of Sergipe, November-2017.

- “Controlabilidade de EDP’s”, V Jornada de Matemática da UFPI, Federal University of Piauí, June- 2017.
- “Controllability results for some chemotaxis models”, VI Workshop de Equações Diferenciais Não Lineares da UFPB, February-2017.
- “Controllability for some pseudo-parabolic equations”, X ENAMA, Fluminense Federal University, Rio de Janeiro, November - 2016.
- “Controllability results for some chemotaxis models”, Nonlinear Partial Differential Equations and Applications, A conference in the honor of Jean-Michel Coron for his 60th birthday, Paris, June - 2016.
- “A spectral Inequality and the cost of null controllability for the Stokes system”, Centre International de Rencontres Mathématiques, Marseille - France, March -2016.
- “Controllability for a pseudoparabolic equation”, VI Benasque Workshop on Partial differential equations, optimal design and numerics, Benasque - Spain, August - 2015.
- “A uniform controllability result for the Keller-Segel system”, Université de Nice Sophia-Antipolis, Nice, March - 2015.
- “Null Controllability of a system of viscoelasticity with a moving control”, Universidade Federal da Paraíba, João Pessoa - Brazil, August - 2014.
- “A hyperbolic system and the cost of the controllability for the Stokes system”, XV International Conference on Hyperbolic Problems: Theory, Numerics, Applications, Rio de Janeiro, Julho/Agosto - 2014. (Poster)
- “A uniform controllability result for the Keller-Segel system”, Workshop MTM2011-29306, BCAM, Bilbao, Junho - 2014.
- “Null controllability of a system of viscoelasticity with a moving control”, Université de Nice Sophia-Antipolis, Nice, March - 2014.
- “The cost of controlling the Stokes system”, Benasque Workshop on Partial differential equations, optimal design and numerics, Benasque, September - 2013.
- “Controllability results for some coupled parabolic systems”, Workshop MTM2011-29306, Bilbao, February - 2013.
- “Null controllability for a degenerating reaction-diffusion system in electrocardiology”, Universidad de Sevilla, Sevilla, November - 2012.

- “*Uniform Null Controllability for a Degenerating Reaction-Diffusion System Approximating a Simplified Cardiac Model*”, Laboratoire Jacques-Louis Lions, Université Pierre et Marie Curie (Paris 6), Paris, November - 2012.
- “*Controllability for Degenerate parabolic equations*”, Benasque Workshop on Partial differential equations, optimal design and numerics, Benasque, September - 2011.
- “*Remarks about the cost of the controllability for the Stokes System*”, Laboratoire Jacques-Louis Lions, Université Pierre et Marie Curie (Paris 6), Paris, December - 2011.
- “*Null Controllability of a Degenerate Reaction-Diffusion system*”, OPTPDE - Summer School - Challenges in Applied Control and Optimal Design, Bilbao - 2011.
- “*A hyperbolic system and the cost of the controllability for the Stokes system*”, MTM2008-03541 Workshop, Bilbao, July - 2010.

Attended Conferences, Workshops and other Scientific events

- III Brazilian Meeting for Young Researchers, Curitiba, Brazil, 2018.
- Workshop Inverse and control problems for physical systems - ICoPs, Valparaíso, Chile, 2018
- Young Researchers in Control Workshop, Les Salles du Verdon - France, July, 2018
- Int. Congress on Applied Math and Informatics - ICAMI, December, 2017.
- VI Workshop de Equações Diferenciais Não Lineares da UFPB, February, 2017.
- V Jornada de Matemática da UFPI, Federal University of Piauí, June, 2017.
- VI Workshop de Equações Diferenciais Não Lineares da UFPB, February, 2017.
- Recife Workshop on Control and Stabilization of PDEs, February, 2017
- X ENAMA, Fluminense Federal University, Rio de Janeiro, November, 2016.
- Nonlinear Partial Differential Equations and Applications, A conference in the honor of Jean-Michel Coron for his 60th birthday, Paris, June, 2016.
- Contrôle des EDP et Applications, Marseille - France, November, 2015.
- VI Benasque Workshop on Partial differential equations, optimal design and numerics, Benasque - Spain, August/September, 2015.
- Theoretical and Numerical Topics in Control and Inverse Problems for PDEs, Besançon - France, March, 2015.

- Conca 60, 60th Anniversary of prof. Carlos Conca, Bilbao, December, 2014.
- Numerivawes Workshop Euskadi - Chile, Bilbao, December, 2014.
- XV International Conference on Hyperbolic Problems: Theory, Numerics, Applications, Rio de Janeiro, July/Agugust, 2014.
- Workshop MTM2011-29306, BCAM, Bilbao, June, 2014.
- Workshop MTM2011-29306, BCAM, Bilbao, 2013.
- VI Benasque Workshop on Partial differential equations, optimal design and numerics, Benasque, 2013.
- OPTPDE - Summer School - Challenges in Applied Control and Optimal Design, Bilbao, 2011.
- V Benasque Workshop on Partial differential equations, optimal design and numerics, Benasque, 2011.
- Trimestre sur le Contrôle des Equations aux Dérivées Partielles et Applications, Institute Henri Poincaré, October-December, 2010.
- Control of Partial Differential Equations, CIME - Fondazione Roberto Conti, Cetraro-Italia, 2010.
- MTM2008-03541 Workshp, BCAM, Bilbao, 2010.

Honors and Awards

- CNPq Researcher Fellow. 2018 – 2021
 - Grant from Basque Government (Ref. BFI-2011-424) for Ph.D. studies. 2010 – 2014
 - Scholarship for Master studies., Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - CAPES 2007 – 2009.
 - Scientific Initiation Scholarship, Conselho Nacional de Desenvolvimento Científico e Tecnológico - CNPq. 2005 – 2007
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Languages

- **Native:** Portuguese.
- **Others:** Spanish (fluent), English (fluent), French (Intermediate) .