Carllos Eduardo Holanda

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Personal

Name: Carllos Eduardo Alves de Holanda.

Birthplace: Maceió, Alagoas, Brazil.

Education

PhD. in Mathematics at Instituto Superior Técnico, Universidade de Lisboa, 2018-2022, under the supervision of Luis Barreira.

M. Sc. in Mathematics at Universidade Federal de Alagoas, 2016-2017, under the supervision of Krerley Oliveira.

B. Sc. in Chemical Engineering at Universidade Federal de Alagoas, 2010-2015.

Professional Experience

Postdoctoral researcher at College of Science, Departament of Mathematics, Shantou University, China, 2023-2025.

Postdoctoral researcher at Institute of Mathematics and Computer Sciences (ICMC), Universidade de São Paulo, Brazil, 2022-2023.

Member of Laboratory of Statistics and Data Science at Universidade Federal de Alagoas, Brazil, 2022-2023.

Review services: refereed for Journal of Difference Equations and Applications and reviewer for Mathematical Reviews (AMS).

Visiting student of Summer School at IMPA - Instituto de Matematica Pura e Aplicada, Brazil, 2017.

Visiting student at CSU - Colorado State University, Science without Borders Scholarship, United States of America, 2014-2015.

Visiting student of Summer School at IMPA - Instituto de Matematica Pura e Aplicada, Brazil, 2014.

Scientific initiation scholarship in Mathematics at Universidade Federal de Alagoas. Project: Numbers and Ergodic Theory, under the direction of Prof. Krerley Oliveira, 2013.

Teaching Assistant of the course Trasport Phenomena 2 (Chemical Engineering) at Universidade Federal de Alagoas, 2013.

Scientific initiation scholarship in Mathematics at Universidade Federal de Alagoas. Project: Ergodic Theory of Number Expansions, under the direction of Prof. Krerley Oliveira, 2012.

Teaching Assistant of the course Physics 2 at Universidade Federal de Alagoas, 2012.

Talks and Participation in Events

Some relations between additive and nonadditive sequences of potentials, presented in the Zoominar in Dynamical Systems at University of Porto, Portugal, held online on 31-03-2023.

Nonlinear thermodynamic formalism, presented in the Dynamical Systems Seminar at Universidade Federal de Alagoas, Brazil, 06-05-2022.

Nonadditive thermodynamic formalism and multifractal analysis for flows, presented in the Lismath Seminar, Instituto Superior Técnico, Universidade de Lisboa, Portugal, held online on 21-04-2022.

Attendance to the Encontro Nacional da Sociedade Portuguesa de Matemática 2021 (ENSPM2021), Portugal, held online from 12-07-2021 to 16-07-2021.

Presentation of the work *Multifractal analysis for flows* in the Lisbon Young Mathematicians Conference, Portugal, held online on 24-4-2021.

Presentation of the work *Nonadditive thermodynamic formalism and multifractal analysis for flows* in Matfest, Universidade Federal de Alagoas, Brazil, held online on 04-12-2020.

Attendance to the workshop Thermodynamical Formalism, Ergodic Theory and Geometry at University of Warwick, Coventry, United Kingdom, from 22-07-2019 to 26-07-2019.

Applications of ergodic theory to number theory, presented in the Lismath Seminar, Instituto Superior Técnico, Universidade de Lisboa, Portugal, 10-10-2018.

Van der Waerden's theorem via Birkhoff's multiple recurrence, presented in the Dynamical Systems Seminar at Universidade Federal de Alagoas, Brazil, 15-12-2016.

Presentation of the work *Perron-Frobenius Theorem with Hyperbolic Metric and Applications in Cycling Strategy* in the Annual Academic Congress at Universidade Federal de Alagoas, Brazil, 2013.

Presentation of the work *Numbers and Ergodic Theory* in the Annual Academic Congress at Universidade Federal de Alagoas, Brazil, 2012.

Publications and preprints

1. *A Livšic-type theorem and some regularity properties for nonadditive sequences of potentials*, preprint arXiv: 2307.11322, submitted (2023).
   (C. E. Holanda and E. Santana)

2. *Asymptotically additive families of functions and a physical equivalence problem for flows*, preprint arXiv: 2210.05926, submitted (2022).
   (C. E. Holanda).

3. *Nonlinear thermodynamic formalism for flows*, Dynamical Systems (2022).
   (L. Barreira and C. E. Holanda).

4. *Higher-dimensional nonlinear thermodynamic formalism*, Journal of Statistical Physics **187**, 18 (2022).
   (L. Barreira and C. E. Holanda).

5. *Dimension spectra for flows: future and past*, Nonlinear Analysis: Real World Applications **65** (2022), 103497.
   (L. Barreira and C. E. Holanda).

6. *Almost additive multifractal analysis for flows*, Nonlinearity **34** (2021), 4283-4314.
   (L. Barreira and C. E. Holanda).

7. *Hyperbolicity of delay equations via cocycles*, Journal of Difference Equations and Applications (2021), 1-24.
   (L. Barreira, C. E. Holanda and C. Valls).

8. *Equilibrium and Gibbs measures for flows*, Pure and Applied Functional Analysis **6** (2021).
   (L. Barreira and C. E. Holanda).

9. *Nonadditive topological pressure for flows*, Nonlinearity **33** (2020), 3370-3394.
   (L. Barreira and C. E. Holanda).

Ongoing projects

1. *Relations between additive and nonadditive sequences and families of potentials.*

2. *Nonlinear phenomena: thermodynamics, multifractal analysis and ergodic optimization for maps and flows.*

3. *Symbolic dynamics and word embeddings: measuring distances between orbits.*

Awards and titles

1st place on the Chemical Engineering entrance examination for the Universidade Federal de Alagoas, 2010.

Languages

Portuguese: native speaker.

English: proficient.