

Curriculum Vitae

Personal Information

Leonardo Nagami Coregliano, born July 7th 1991, São Paulo, São Paulo, Brazil.

Academic History

- 09/2023–present day Dickson Instructor at
University of Chicago
- 09/2021–07/2023 Post-doctoral member at
Institute for Advanced Study
- 09/2015–06/2021 Ph.D. in Mathematics and Computer Science at
University of Chicago
- 08/2013–08/2015 M.Sc. in Computer Science at
Universidade de São Paulo
- 08/2009–08/2013 Bachelor’s degree in Molecular Sciences at
Universidade de São Paulo

Awards

- 09-2020–12/2020 William Rainey Harper Dissertation Fellowship,
University of Chicago
- 04/2020–06/2020 University Unrestricted (UU) Fellowship,
University of Chicago

Graduate Research

- 2021 Ph.D. dissertation: *Applications of continuous combinatorics to quasirandomness and extremal combinatorics*
Advisor: Prof. Alexander A. Razborov
- 2018 M.Sc. dissertation: *Semantic Limits of Combinatorial Objects*
Advisor: Prof. Alexander A. Razborov
- 2015 M.Sc. dissertation: *Flag Algebras and Tournaments*
Advisor: Prof. Yoshiharu Kohayakawa
- 09/2014–03/2015 Work in flag algebras and continuous combinatorics
(during exchange program at University of Chicago)
Advisor: Prof. Alexander A. Razborov
Co-advisor: Prof. Yoshiharu Kohayakawa

Undergraduate Work

- 01/2013–04/2013 Scientific Initiation: Sidorenko’s Conjecture
(during exchange program at University of Toronto),
Advisor: Dr. Viktor Harangi
Co-advisor: Prof. Yoshiharu Kohayakawa
- 07/2011–07/2013 Scientific Initiation: Modern Techniques in Combinatorics
(at Universidade de São Paulo),
Advisor: Prof. Yoshiharu Kohayakawa

Publications

- [1] L. N. Coregliano and A. A. Razborov. Natural quasirandomness properties. *Random Structures Algorithms*, 63(3):624–688, 2023.
- [2] L. N. Coregliano, F. G. Jeronimo, and C. Jones. Exact Completeness of LP Hierarchies for Linear Codes. In Yael Tauman Kalai, editor, *14th Innovations in Theoretical Computer Science Conference (ITCS 2023)*, volume 251 of *Leibniz International Proceedings in Informatics (LIPIcs)*, pages 40:1–40:18, Dagstuhl, Germany, 2023. Schloss Dagstuhl – Leibniz-Zentrum für Informatik.
- [3] L. N. Coregliano and M. Malliaris. Weak randomness in graphons and theons. Technical Report arXiv:2209.08638, arXiv e-print, 2022. Submitted.
- [4] L. N. Coregliano and M. Malliaris. Countable Ramsey. Technical Report arXiv:2203.10396, arXiv e-print, 2022. Submitted.
- [5] L. N. Coregliano, F. G. Jeronimo, and C. Jones. A Complete Linear Programming Hierarchy for Linear Codes. In Mark Braverman, editor, *13th Innovations in Theoretical Computer Science Conference (ITCS 2022)*, volume 215 of *Leibniz International Proceedings in Informatics (LIPIcs)*, pages 51:1–51:22, Dagstuhl, Germany, 2022. Schloss Dagstuhl – Leibniz-Zentrum für Informatik.
- [6] L. N. Coregliano and F. G. Jeronimo. Tighter bounds on the independence number of the Birkhoff graph. *European Journal of Combinatorics*, 105:103564, 2022.
- [7] L. N. Coregliano. On the abstract chromatic number and its computability for finitely axiomatizable theories. *J. Combin. Theory Ser. B*, 154:175–210, 2022.
- [8] L. N. Coregliano. Left-cut-percolation and induced-Sidorenko bigraphs. Technical Report arXiv:2205.14703, arXiv e-print, 2022. Submitted.
- [9] L. N. Coregliano and A. A. Razborov. Biregularity in Sidorenko’s conjecture. Technical Report arXiv:2108.06599 [math.CO], arXiv e-print, 2021.
- [10] L. N. Coregliano and A. A. Razborov. Semantic limits of dense combinatorial objects. *Russian Mathematical Surveys*, 75(4):627–723, aug 2020.
- [11] L. N. Coregliano and A. A. Razborov. Semantic limits of dense combinatorial objects. *Uspekhi Mat. Nauk*, 75(4(454)):45–152, 2020.
- [12] L. N. Coregliano, R. F. Parente, and C. M. Sato. On the maximum density of fixed strongly connected subtournaments. *Electron. J. Combin.*, 26(1):Paper 1.44, 48, 2019.
- [13] L. N. Coregliano. Quasi-carousel tournaments. *J. Graph Theory*, 88(1):192–210, 2018.
- [14] L. N. Coregliano and A. A. Razborov. On the density of transitive tournaments. *J. Graph Theory*, 85(1):12–21, 2017.
- [15] J. O. Bastos and L. N. Coregliano. Packing densities of layered permutations and the minimum number of monotone sequences in layered permutations. *Discrete Math. Theor. Comput. Sci.*, 18(2):Paper No. 7, 24, 2016.
- [16] L. N. Coregliano. A continuous time stochastic model for biological neural nets. Technical Report arXiv:1507.06331 [math.PR], arXiv e-print, 2015.

Talks and Seminars

- 09/2023 “A modern view of quasirandomness through continuous combinatorics”
Dickson Day (University of Chicago, short talk)
- 06/2023 “Continuous combinatorics”
at Frontiers of Set Theory Workshop (Fields Institute)

- 05/2023 at Czech Academy of Sciences (Logic Seminar, online)
 “Weak randomness”
- 03/2023 at Wesleyan University (Logic seminar)
- 03/2023 at AMS 2023 Spring Southeastern Sectional Meeting (Georgia Institute of Technology)
- 02/2023 “Ramsey’s Theorem in the countable and weak randomness”
 at Rutgers University (Logic seminar)
- 11/2022 “Introduction to natural quasirandomness: unique colorability and orderability”
 at Institute for Advanced Study (CSDM seminar)
- 09/2022 “Structural complexity of universal theories via continuous combinatorics”
 at Institute for Advanced Study (short talk)
- 05/2022 “Association schemes and codes I: The Delsarte linear program” and “Association schemes
 and codes II: Completeness of the hierarchy of high-order Hamming schemes”
 at Institute for Advanced Study (CSDM seminar)
- 10/2022 “Ramsey’s Theorem in the countable and the approximate Erdős–Hajnal property”
 at University of Delaware (Discrete Math/Algebra Seminar)
- 10/2022 at Princeton University (Discrete Math Seminar)
- 10/2022 at AMS Fall Eastern Sectional Meeting (University of Massachusetts – Amherst)
- 06/2022 at Combinatorics Meets Model Theory (University of Cambridge)
- 03/2022 at Rutgers Discrete Math Seminar
- 01/2022 “A Complete Linear Programming Hierarchy for Linear Codes”
 at ITCS 2022 (Simons Institute, online)
- 11/2021 “Introduction to Continuous Combinatorics I: the semidefinite method of flag algebras” and
 “Introduction to Continuous Combinatorics II: semantic limits”
 at Institute for Advanced Study (CSDM seminar)
- “The abstract chromatic number”
- 08/2022 at Universidade de São Paulo (in Portuguese)
- 03/2021 at Institute for Advanced Study (CSDM seminar, online)
- “Continuous combinatorics and natural quasirandomness”
- 02/2023 at Georgia Institute of Technology
- 01/2023 at Emory University
- 12/2022 at 2022 CMS Winter meeting (Toronto)
- 11/2022 at University of Illinois at Chicago
- 12/2021 at Fields Institute (Workshop on Model Theory and Combinatorics, online)
- 07/2021 at Institute for Advanced Study (short talk)
- 02/2021 at MidWest Model Theory Seminar (online)
- “Semantic Limits of (Dense) Combinatorial Objects”
- 06/2020 at Stanford University (online)
- 08/2019 at Universidade de São Paulo
- 04/2019 at 6th Lake Michigan Workshop on Combinatorics and Graph Theory
- 05/2015 “Applications of flag algebras to tournaments I: Minimum density of transitive tournaments”
 and “Applications of flag algebras to tournaments II: Quasi-carousel tournaments”
 at Universidade de São Paulo
- 05/2015 “A continuous time stochastic model for biological neural nets”
 at NeuroMat First Young Researchers Workshop (São Paulo, Brazil)
- 08/2014 “Flag Álgebras para Permutações”
 (“Flag Algebras for Permutations”)
 at Universidade de São Paulo
- 06/2013 “Conjectura de Erdős–Simonovits–Sidorenko”
 (“The Erdős–Simonovits–Sidorenko Conjecture”)
 at Universidade de São Paulo (2 seminars)

- 04/2013 “A new proof of the known cases of Sidorenko’s conjecture”
at Emory University
- 08/2012 “Passeios na reta”
 (“Random walks on the line”)
at Universidade de São Paulo (3 seminars)
- 03/2012 “O problema das distâncias distintas de Erdős”
 (“Erdős’s distinct distances problem”)
at Universidade de São Paulo (3 seminars)

Other Work and Achievements

- 08/2013 – 08/2014 Lecture notes elaboration of
PICME (Programa de Iniciação Científica e Mestrado) seminars
on Combinatorics, Probability and Optimization
Notes available (in Portuguese) at www.ime.usp.br/~lenacore/PICME/.
- 2011 31st place in ACM Programming Contest Brazilian Final
Team’s name: “Ciências o quê?”
Other team members: Ana Cláudia Martins Ciconelle
Ademar Marques Lacerda Filho
Giulia Satiko Maesaka
Team’s coach: Luis Gustavo Rocha Vianna

Languages

Portuguese (native language);
English (fluent level);
French (intermediate level);
Spanish (intermediate level);
Italian (intermediate level);
German (intermediate level);
Japanese (basic level);
Russian (basic level).