

# João Pedro Gonçalves Ramos

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## PERSONAL

**Citizenship.** Born in Rio de Janeiro - RJ, Brazil, on December 27, 1995.

### Language skills.

**Portuguese:** Mother Tongue.

**English:** Fluent – Certification available upon request.

**German:** Fluent.

**Spanish:** Fluent.

**French:** Fair.

**Italian:** Fair.

## EDUCATION

**Bachelor Degree in Mathematics**, Universidade Federal do Rio de Janeiro, 2015 - 2016

Final Project Advisor: Emanuel Carneiro (IMPA).

Project Title: Carleson's Theorem and its Relations with Time-Frequency Analysis.

**Master of Sciences in Mathematics**, Instituto de Matemática Pura e Aplicada, 2014 - 2016

Advisor: Claudio Landim

**PhD. Student in Mathematics**, Universität Bonn, 2016 –

Advisor: Christoph Thiele

(degree expected in 2020)

## AWARDS, HONOURS AND SCHOLARSHIPS

DAAD (Deutscher Akademischer Austauschdienst) Scholarship, from 01-04-2017 to 31-03-2020.

Simons visitor, ICTP Trieste, from 01-11-2016 to 09-11-2016.

Nota 10 Scholarship, granted by Fundação de Amparo à Pesquisa do Estado do Rio de Janeiro (FAPERJ) to the two brightest students in the First Year of Master Degree course in IMPA - 2015.

Gulbenkian Foundation Scholarship, for the 2014 Summer School - 2014.

Brazilian Mathematical Olympiad, Bronze Medal - 2013.

Brazilian Mathematical Olympiad, Honourable Mention - 2012.

Brazilian Mathematical Olympiad for Public Schools, 5 Medals (3 Golds, 2 Silvers) - From 2008-2013

## PROFESSIONAL EXPERIENCE

### ATTENDED SEMINARS, CONFERENCES, COLLOQUIA AND WORKSHOPS

Summer School on Sphere Packings and Optimal Configurations, Kopp, Germany, from 29-09-2019 to 04-10-2019. (upcoming)

DMV-Jahrestagung 2019, Karlsruhe, Germany, from 23-09-2019 to 26-09-2019. (upcoming)

7th Heidelberg Laureate Forum, Heidelberg, Germany, from 22-09-2019 to 27-09-2019. (upcoming)

32 Coloquio Brasileiro de Matemática, IMPA, Rio de Janeiro, Brazil, from 28-07-2019 to 02-08-2019. (upcoming)

Matemáticos Portugueses pelo Mundo, Porto, Portugal, from 24-06-2019 to 26-06-2019.

Follow-up Workshop to TP "Harmonic Analysis and Partial Differential Equations", Bonn, Germany, from 06-05-2019 to 10-05-2019. (upcoming)

Summer School on Unique continuation and inverse problems, Kopp, Germany, from 02-09-2018 to 07-09-2018.

International Congress of Mathematicians 2018, Rio de Janeiro, Brazil, from 01-08-2018 to 09-08-2018.

ICM 2018 Satellite Conference Harmonic Analysis, Porto Alegre, Brazil, from 24-07-2018 to 29-07-2018.

Summer School on Decoupling and Polynomial Methods in Analysis, Kopp, Germany, from 01-10-2017 to 06-10-2017.

Analysis and Applications: a conference in honour of Elias M. Stein, Wrocław, Poland, from 04-09-2017 to 08-09-2017.

Harmonic analysis and its interactions: in honour of Tony Carbery, Edinburgh, Scotland, from 17-07-2017 to 21-07-2017.

Recent Developments in Harmonic Analysis, Berkeley, CA, USA, from 15-05-2017 to 19-05-2017.

Recent developments in Analytic Number Theory, Berkeley, CA, USA, from 01-05-2017 to 05-05-2017.

Atelier d'Analyse Harmonique, Nantes, France, from 06-03-2017 to 10-03-2017.

Around Analysis, Domains and Mappings – Conference on the occasion of the 75th birthday of Olli Martio, Jyväskylä, Finland, from 15-12-2016 to 17-12-2016.

Young Women in Harmonic Analysis and PDEs, Bonn, Germany, from 02-12-2016 to 04-12-2016.

Research visit, Trieste, Italy, from 01-11-2016 to 09-11-2016.

Summer School on Paraproducts and Analysis of Rough Paths, Kopp, Germany, from 11-09-2016 to 16-09-2016.

Analysis and Beyond: Celebrating Jean Bourgain's Work and Impact, Princeton, NJ, USA, from 21-05-2016 to 24-05-2016.

Conference in Harmonic Analysis in Honor of Michael Christ, Madison, WI, USA, from 16-05-2016 to 20-05-2016.

First Joint Meeting Brazil-Spain in Mathematics, Fortaleza, Brazil, from 07-12-2015 to 11-12-2015.

Second Workshop on Combinatorics, Number Theory and Dynamical Systems, IMPA, Rio de Janeiro, Brazil, from 24-08-2015 to 28-08-2015.

International Conference on Current Trends in Analysis and PDEs, IMPA, Rio de Janeiro, Brazil, from 17-08-2015 to 21-08-2015.

30 Colóquio Brasileiro de Matemática, IMPA, Rio de Janeiro, Brazil, from 26-07-2015 to 31-07-2015.

International Workshop on Elliptic and Kinetic Partial Differential Equations, IMPA, Rio de Janeiro, Brazil, from 6-07-2015 to 17-07-2015.

International Conference in Number Theory and Physics, IMPA, Rio de Janeiro, Brazil, from 15-06-2015 to 26-06-2015.

Algebraic Geometry Summer School, Gulbenkian Foundation, Lisbon, Portugal, from 14-07-2014 to 18-07-2014.

First Workshop on Combinatorics, Number Theory and Dynamical Systems, IMPA, Rio de Janeiro, Brazil, from 19-08-2013 to 23-08-2013.

29 Colóquio Brasileiro de Matemática, IMPA, Rio de Janeiro, Brazil, from 21-07-2013 to 02-08-2013.

## TALKS PRESENTED

*The Hilbert transform along curves, anisotropically homogeneous multipliers and the polynomial Carleson theorem*, DMV-Jahrestagung 2019, 24-09-2019. (upcoming)

*The Hilbert transform along curves, anisotropically homogeneous multipliers and the polynomial Carleson theorem*, Invited Speaker at 32 Colóquio Brasileiro de Matemática, 02-08-2019. (upcoming)

*Fourier transforms, restriction problems and pointwise convergence*, Invited Speaker at IMPA's students colloquium, 15-03-2019.

*The Hilbert transform along curves, anisotropically homogeneous multipliers and the polynomial Carleson theorem*, Invited Speaker at IMPA's Analysis and PDEs seminar, 14-03-2019.

*Maximal functions and two-dimensional restriction*, Invited Speaker at Uni. Bielefeld's Oberseminar Analysis, 16-11-2018.

*Maximal functions and two-dimensional restriction*, Invited Speaker at Uni. Bonn's Graduate Seminar on Advanced Topics in PDE, 26-10-2018.

*A remark on gradients of harmonic functions in dimension  $\geq 3$* , Invited Speaker at the Summer School on Unique continuation and inverse problems, 04-09-2018.

*Regularity of fractional maximal functions through Fourier multipliers*, Invited Speaker at Uni. Bonn's Graduate Seminar on Advanced Topics in PDE, 22-06-2018.

*Sharp total variation results for non-tangential maximal functions*, Invited Speaker at Uni. Bonn's Graduate Seminar on Advanced Topics in PDE, 02-02-2018.

*Fourier Multipliers, Local Smoothing and Regularising Properties of Fractional Maximal Functions*, Invited Speaker at IMPA's Analysis and PDEs seminar, 09-01-2018.

*On the Variation of the Hardy-Littlewood Maximal Function*, Speaker at the Uni. Bonn Seminar on Regularity Properties of Maximal functions, Winter Semester 2017, 29-11-2017.

*A Restriction Estimate Using Polynomial Partitioning*, Invited Speaker at the Summer School on Decoupling and Polynomial Methods in Analysis, 05-10-2017.

*New Facets of Uncertainty Principles in Fourier Analysis*, Invited Speaker at the conference “Atelier d’Analyse Harmonique”, 08-03-2017.

*Uncertainty Principles and the Last Zero of a Function*, Invited Speaker on IMPA’s Students Colloquium, 23-09-2016.

*Inverting the Signature of a Path, part 2*, Invited Speaker at the Summer School on Paraproducts and Analysis of Rough Paths, 15-09-2016.

*Inverting the Signature of a Path*, Invited Speaker at the Summer School on Paraproducts and Analysis of Rough Paths, 12-09-2016.

*The Sharp Hausdorff-Young Inequality*, Invited Speaker on Universität Bonn’s Basic Notions Seminar, 22-06-2016.

*Maximal Operators and Regularity of Functions: A Panorama*, Invited Speaker on IMPA’s Students Colloquium, 01-04-2016.

*Maximal Operators Around Mathematics*, Invited Speaker on IMPA’s Students Colloquium, 04-09-2015.

*Number of Visits in Random Walks*, (with F. Severo) Invited Speaker on IMPA’s Students Colloquium, 19-09-2014.

## POSTERS PRESENTED

*The Hilbert transform along the parabola and the polynomial Carleson theorem*, University of Bonn’s annual poster exhibition, 27-06-2019 and 28-06-2019.

*On Fourier Multipliers related to the regularity of Fractional Maximal Operators*, ICM 2018 Satellite Conference Harmonic Analysis, from 24-07-2018 to 29-07-2018.

*On Fourier Multipliers related to the regularity of Fractional Maximal Operators*, University of Bonn’s annual poster exhibition, 05-07-2018 and 06-07-2018.

*On the equivalence of root uncertainty principles*, University of Bonn’s annual poster exhibition, 06-07-2017 and 07-07-2017.

*On the equivalence of root uncertainty principles*, Conference for young women in harmonic analysis and PDEs, 02-12-2016 to 04-12-2016.

*On the variation of some nontangential maximal functions*, University of Bonn’s annual poster exhibition, 30-06-2016 and 01-07-2016.

## TEACHING AND ASSISTANCE EXPERIENCE

**Seminar Organizer**, Summer Semester 2019

Graduate seminar on Advanced Topics in PDE Masters program in mathematics, Uni. Bonn  
Coorganized with Dr. Alex Amenta, Prof. Dr. Herbert Koch and Prof. Dr. Christoph Thiele.

**Teaching Assistant**, Summer Semester 2019

Course: Harmonic Analysis Masters program in mathematics, Uni. Bonn  
Instructor: Prof. Dr. Christoph Thiele.

**Tutor**, Fall Semester 2018

Course: Analysis III (carried out in German)  
 Bachelor program in mathematics, Uni. Bonn  
 Instructor: Prof. Dr. Herbert Koch.

**Tutor**, Summer Semester 2018

Course: Mathematics for Physicists II (carried out in German)  
 Bachelor program in physics, Uni. Bonn  
 Instructor: Priv. Doz. Dr. Wladimir Weigant.

**Notes taker**, Fall Semester 2016

Course: Real and Harmonic Analysis  
 Masters program in mathematics, Uni. Bonn  
 Instructor: Prof. Dr. Christoph Thiele.

**Teaching Assistant**, Summer 2016

Course: Introduction to Nonlinear Dispersive Equations (carried out in Portuguese)  
 PhD. program in mathematics, IMPA  
 Instructor: Prof. Dr. José Felipe Linares Ramirez.

## PAPERS AND PREPRINTS

Felipe Gonçalves, Diogo Oliveira e Silva and João Pedro Ramos, *Abstract root uncertainty principles for orthogonal polynomials*. In preparation.

Felipe Gonçalves, Diogo Oliveira e Silva and João Pedro Ramos, *On rearrangement inequalities and regularity of extremizers to some root uncertainty principles*. In preparation.

João Pedro Ramos and Mateus Sousa, *Small powers and Fourier uniqueness sets*. In preparation.

João Pedro Ramos, Olli Saari and Julian Weigt, *Smoothing of singular functions through local fractional maximal operator*. In preparation.

João Pedro Ramos, *The Hilbert transform along the parabola, oscillatory singular integrals and the polynomial Carleson theorem*. Preprint.

João Pedro Ramos, *Low-dimensional maximal restriction principles for the Fourier transform*. Preprint.

João Pedro Ramos, *Maximal restriction estimates and the maximal function of the Fourier transform*. To appear in the Proceedings of the American Mathematical Society.

David Beltrán, João Pedro Ramos and Olli Saari, *On Fourier Multipliers related to the regularity of Fractional Maximal Operators*. To appear in the Journal of Functional Analysis.

João Pedro Ramos, *Sharp total variation results for maximal functions*. To appear in the Annales Academiae Scientiarum Fennicae.

## INTERESTS

My main interests rely on Harmonic Analysis and its relations with affine areas, such as Dispersive Equations, Analytic Number Theory and Complex Analysis. Currently, I am a fourth year PhD student at Universität Bonn under the supervision of Professor Christoph Thiele.

Last Update: July 8, 2019