

CURRICULUM VITAE

Dr. Josué TONELLI-CUETO^{of}

 0000-0002-2904-1215

CONTACT INFORMATION

E-mail address: josue.tonelli.cueto@bizkaia.eu

Webpage: tonellicueto.xyz

AREAS OF MATHEMATICAL INTEREST

Numerical algorithms Condition-based complexity
Computational algebraic geometry Random geometry

POSITIONS

Rufus Isaacs Postdoctoral Fellow

Institution: John Hopkins University
Mentor: Soledad Villar
Location: Baltimore, Maryland, USA
Duration: 08/2023-08/2025(26)

Research Fellow

Institution: The University of Texas at San Antonio
Mentor: Alperen A. Ergür
Location: San Antonio, Texas, USA
Duration: 09/2022-08/2023

Postdoctoral researcher & FSMP Postdoctoral Fellow (since 10/2020)

Institution: Inria Paris
IMJ-PRG
Team OURAGAN
Mentors: Fabrice Rouillier
Elias Tsigaridas
Location: Paris, France
Duration: 02/2020-09/2022

EDUCATION

Dr. rer. nat. Mathematik

(PhD in Mathematics in the framework of the Berlin Mathematical School)

Doctoral thesis' title: *Condition and Homology in Semialgebraic Geometry*

Doctoral Supervisors: Peter Bürgisser
Felipe Cucker

Grade: mit Auszeichnung bestanden (summa cum laude)

(Obtained only when both the thesis and presentation are given the highest grade)

Recognitions: 3rd Prize in the Tiburtius Prizes of the Berlin Universities
MATH+ Dissertation Award 2020

Institution: Berlin Mathematical School (BMS)
Technische Universität Berlin

Duration: 01/2017-11/2019

M.Sc. Mathematik

(M.Sc. Mathematics in the framework of the Berlin Mathematical School)

Master's thesis' title: *On the Complexity of some Null-Cone Membership Problems*

Master's thesis' supervisor: Peter Bürgisser

Average grade: 1.0 (In the German system, 1.0 is the highest grade)

Institution: Technische Universität Berlin
Berlin Mathematical School (BMS)

Duration: 10/2014-03/2017

Licenciatura en Matemáticas con Primer Premio Nacional Fin de Carrera

(B. Mathematics with First Prize in the End of Studies National Awards)

Average grade: 9.86/10 (In the Spanish system, 10 is the highest grade)

Recognitions: Best Student Record
Extraordinary End of Degree Award
First Prize in the End of Studies Spanish National Awards

Institution: University of the Basque Country (UPV/EHU)

Duration: 10/2009-07/2014

PUBLICATIONS

In progress

J. Tonelli-Cueto. (n.d.). A numerical algorithm for zero counting. IV: An adaptive speedup. In progress. Presented at MEGA2020.

J. Tonelli-Cueto & E. Tsigaridas. (n.d.). Condition-based bounds on the size of a polynomial zero set. In progress.

Preprints

M. Radons & J. Tonelli-Cueto. (2022, June). Generalized Perron Roots and Solvability of the Absolute Value Equation. Journal-submitted version of (Radons & Tonelli-Cueto, 2022, July). arXiv:1912.08157.

J. Tonelli-Cueto. (2022, March). A p -adic Descartes solver: the Strassman solver. arXiv:2203.07016.

Kh. Kozhasov & J. Tonelli-Cueto. (2022, January). Probabilistic bounds on best rank-one approximation ratio. arXiv:2201.02191.

Journal papers

J. Tonelli-Cueto & E. Tsigaridas. (2023, March). Condition Numbers for the Cube. I: Univariate Polynomials and Hypersurfaces. *Journal of Symbolic Computation*, 115, 142–173. doi:10.1016/j.jsc.2022.08.013. In the Special Issue of ISSAC '20. Journal version of (Tonelli-Cueto & Tsigaridas, 2020, July). arXiv:2006.04423.

F. Cucker, A. A. Ergür, & J. Tonelli-Cueto. (2022, November). Functional norms, condition numbers and numerical algorithms in algebraic geometry. *Forum of Mathematics, Sigma*, 10(e103), 1–41. doi:10.1017/fms.2022.89. arXiv:2102.11727.

J. Tonelli-Cueto. (2022, October). A Geometric Summation of the Geometric Series. *The American Mathematical Monthly*, 129(10), 974–974. doi:10.1080/00029890.2022.2115825. hal-03779492.

F. Cucker, A. A. Ergür, & J. Tonelli-Cueto. (2022, August). On the Complexity of the Plantinga-Vegter Algorithm. *Discrete & Computational Geometry*, 68(3), 664–708. doi:10.1007/s00454-022-00403-x. Journal version of (Cucker, Ergür, & Tonelli-Cueto, 2019, July). arXiv:2004.06879.

P. Bürgisser, F. Cucker, & J. Tonelli-Cueto. (2021, October). Computing the Homology of Semialgebraic Sets. II: General formulas. *Foundations of Computational Mathematics*, 21(5), 1279–1316. On-line from January of 2021. doi:10.1007/s10208-020-09483-8. arXiv:1903.10710.

- P. Bürgisser, F. Cucker, & J. Tonelli-Cueto. (2020, February). Computing the Homology of Semialgebraic Sets. I: Lax Formulas. *Foundations of Computational Mathematics*, 20(1), 71–118. On-line from May of 2019. doi:10.1007/s10208-019-09418-y. arXiv:1807.06435.
- P. Bürgisser, A. A. Ergür, & J. Tonelli-Cueto. (2019, December). On the Number of Real Zeros of Random Fewnomials. *SIAM J. Appl. Algebra Geom.* 3(4), 721–732. doi:10.1137/18M1228682. arXiv:1811.09425.

Conference papers

- A. Chalkis, Ch. Katsamaki, & J. Tonelli-Cueto. (2022, July). On the Error of Random Sampling: Uniformly Distributed Random Points on Parametric Curves. In *Proceedings of the 2022 international symposium on symbolic and algebraic computation* (pp. 273–282). ISSAC '22. Villeneuve-d'Ascq, France. ACM. doi:10.1145/3476446.3536190. arXiv:2203.02832..
- A. A. Ergür, J. Tonelli-Cueto, & E. Tsigaridas. (2022, July). Beyond Worst-Case Analysis for Root Isolation Algorithms. In *Proceedings of the 2022 international symposium on symbolic and algebraic computation* (pp. 139–148). ISSAC '22. Villeneuve-d'Ascq, France. ACM. doi:10.1145/3476446.3535475. arXiv:2202.06428..
- M. Radons & J. Tonelli-Cueto. (2022, July). Generalized Perron roots and solvability of the absolute value equation. In L. F. Tabera Alonso (Ed.), *Discrete mathematics days 2022* (pp. 237–242). Santander, Spain. Editorial Universidad de Cantabria. doi:10.22429/Euc2022.016
- J. G. Suchen & J. Tonelli-Cueto. (2022, June). Ultrametric Smale's α -theory. *ACM Commun. Comput. Algebra*, 56(2), 56–59. doi:10.1145/3572867.3572875. arXiv:2206.08392.
- J. Tonelli-Cueto & E. Tsigaridas. (2020, July). Condition Numbers for the Cube. I: Univariate Polynomials and Hypersurfaces. In *Proceedings of the 2020 on International Symposium on Symbolic and Algebraic Computation* (pp. 434–441). ISSAC '20. Kalamata, Greece. ACM. doi:10.1145/3373207.3404054. arXiv:2006.04423v1.
- F. Cucker, A. A. Ergür, & J. Tonelli-Cueto. (2019, July). Plantinga-Vegter Algorithm Takes Average Polynomial Time. In *Proceedings of the 2019 on International Symposium on Symbolic and Algebraic Computation* (pp. 114–121). ISSAC '19. Beijing, China. ACM. doi:10.1145/3326229.3326252. arXiv:1901.09234.

Other

- J. Tonelli-Cueto. (2019, December). *Condition and Homology in Semialgebraic Geometry* (Doctoral thesis, Technische Universität Berlin). doi:10.14279/depositonce-9453

ORGANIZED ACTIVITIES

VII Congreso de Jóvenes Investigadores la RSME [Organizing Committee]

(RSME's 7th Congress of Young Researchers)

Description: Conference of the Royal Spanish Mathematical Society for young researchers

Organizing Committee: Julen Alvarez-Aramberri

Jon Asier Bárcena-Petisco

Aingeru Fernández Bertolin

Oihana Garayalde Ocaña

Leticia Hernando

Iker Malaina

Judit Muñoz-Matute

Josué Tonelli-Cueto

Jone Uria-Albizuri

Organizer: Real Sociedad Matemática Española (RSME)

Hosting Institution: University of the Basque Country (UPV/EHU)

Basque Center for Applied Mathematics (BCAM)

Location: Bilbao, Spain

Date: 13/01/2025-17/01/2025

Minisymposium *Computational Real Algebraic Geometry* [Co-organizer]

at the **SIAM Conference on Applied Algebraic Geometry 2023**

Organizer: Josué Tonelli-Cueto

Beatriz Pascual Escudero

Sebastian Debus

Cordian Riener

Location: Eindhoven, The Netherlands

Date: 10/07/2023-14/07/2023

Sesión Especial *Geometría Algebraica II: Aplicaciones y Computación* [Co-organizer]

at the **VI Congreso de Jóvenes Investigadores de la RSME**

(Special Session *Algebraic Geometry II: Applications and Computation*)

Organizer: Josué Tonelli-Cueto

Angélica Torres

Location: León, Spain

Date: 06/02/2023-11/02/2023

AMS Special Session on *Data Science at the Crossroads of Analysis, Geometry, and Topology*

(a **Mathematics Research Communities session**) [Co-organizer]

at the **Joint Mathematics Meetings 2023**

Organizer: Hitesh Gakhar

Harlin Lee

Josué Tonelli-Cueto

Location: Boston, Massachusetts, USA

Date: 4/01/2023-7/01/2023

Sesión Especial *Computación y Aplicaciones en Geometría Algebraica* [Co-organizer]

at the **II Encuentro RSME-UMA**

(Special Session *Computation and Applications in Algebraic Geometry*)

Organizer: Alicia Dickenstein

Gabriela Jerónimo

Beatriz Pascual Escudero

Josué Tonelli-Cueto

Location: Ronda, Spain

Date: 12/12/2022-16/12/2022

Mini-Symposium *Applications and Computation in Algebraic Geometry* [Co-organizer]
at the **5th Annual Meeting of the SIAM Texas-Louisiana Section**

Organizer: Jordy Lopez Garcia
Josué Tonelli-Cueto
Thomas Yahl

Location: Houston, USA

Date: 04/11/2022-06/11/2022

Sesión Especial *Geometría Algebraica: la Aplicada, la Computacional y la Numérica* [Co-organizer]
at the **Congreso Bienal de la Real Sociedad Matemática Española 2022**

(Special Session *Algebraic Geometry: the Applied, the Computational and the Numerical*)

Organizer: Laura Brustenga i Moncusí
Roser Homs
Josué Tonelli-Cueto

Location: Ciudad Real, Spain (Hybrid)

Date: 17/01/2022-21/01/2022

Minisymposium *Computational Real Algebraic Geometry* [Co-organizer]
at the **SIAM Conference on Applied Algebraic Geometry 2021**

Organizer: Cordian Riener
Josué Tonelli-Cueto

Location: College Station, Texas, USA (On-line)

Date: 16/08/2021-20/08/2021

Special Session *Symbolic and Numerical Computation with Polynomials* [Co-organizer]
at the **Mathematical Congress of the Americas 2021**

Organizer: Diego Armentano
Matías Bender
Alperen A. Ergür
Josué Tonelli-Cueto

Location: Buenos Aires, Argentina (On-line)

Date: 19/07/2021-24/07/2021

3rd BYMAT Conference [Member of the Scientific Committee and of the Poster Committee]

Description: Conference of young mathematicians

Scientific Committee: Adrián Hinojosa-Calleja (Coordinator)
Marta de León-Contreras
Consuelo Parreño-Torres, Tomás Sanz-Perela
Victoria Ponce-Bobadilla
Erik Sarrión-Pedralva
Josué Tonelli-Cueto
Juan Carlos Cortés López

Poster Committee: Clara Burgos Simón
Ángela Capel
David Martínez
Judit Muñoz-Matute
Eva Primo Tárraga
Erik Sarrión-Pedralva
Josué Tonelli-Cueto

Hosting Institution: Universitat de València
Universitat Politècnica de València

Location: Valencia, Spain (On-line)

Date: 01/12/2020-03/12/2020

“What is...?” Seminar [Co-organizer]

Description: Student organized seminar where
a new concept, idea or object is introduced in each session
Role: Co-organizer, web design and video management
Institution: Berlin Mathematical School (BMS)
Location: Berlin, Germany
Date: 05/2016-12/2019

Research Workshop on Random Real Algebraic Geometry [Co-organizer]

Organizer: Alp Bassa
Turgay Bayraktar
Özgür Kiisel
Ferit Öztürk
Josué Tonelli-Cueto
Location: Güzelyurt, Northern Cyprus
Date: 21/10/2019-26/10/2019

Minisymposium *Numerical methods for structured polynomial system solving* [Co-organizer] at the SIAM Conference on Applied Algebraic Geometry 2019

Organizer: Alperen A. Ergür
Pierre Lairez
Gregorio Malajovich
Josué Tonelli-Cueto
Location: Bern, Switzerland
Date: 09/07/2019-12/07/2019

6th BMS Student Conference [Member of the Organizing Committee]

Description: Conference organized by BMS Students
Organizing Committee: Héctor Andrade Loarca
Qiao Luo
Brent Moran
Yuya Tokuta
Josué Tonelli-Cueto
Organizer: 2017 BMS Student Representatives
Hosting Institution: Berlin Mathematical School (BMS)
Location: Berlin, Germany
Date: 21/02/2018-23/02/2018

TALKS AND OTHER PRESENTATIONS

Conference presentations

SIAM Conference on Applied Algebraic Geometry 2023 (2023)

Given talk: Condition-Based Probabilistic Complexity of Symbolic Algorithms:
Descartes' Solver and Beyond!

VI Congreso de Jóvenes Investigadores (2023)

Given talk: Condition-based Low-Degree Approximation of Real Polynomial Systems

Joint Mathematics Meetings 2023 (2023)

Given talk: Condition-based Low-Degree Approximation of Real Polynomial Systems

4th BYMAT Conference (2022)

Given talk: Average Almost-Optimality of DESCARTES Solver

5th Annual Meeting of the SIAM Texas-Louisiana Section (2022)

Given talk: Generating random points uniformly distributed on a parametric curve

8th Iberian Mathematical Meeting (2022)

Given talk: Why does DESCARTES solver work?

XXI Lluís Santaló School: *Random and Deterministic Point Configurations* (2022)
 Given talk: The Grid Method in Numerical Real Algebraic Geometry

47th International Symposium on Symbolic and Algebraic Computations (2022)
 Given talk: Beyond Worst-Case Analysis for Root Isolation Algorithms

MEGA 2022: Effective Methods in Algebraic Geometry (2022)
 Given talk: Probabilistic bounds on best rank-one approximation ratio

Congreso Biental de la Real Sociedad Matemática Española 2022 (2022)
 Given talk: New bounds for the number of real zeros of a random polynomial system

Jornada SIEF y Asamblea General 2021 (2021)
 Given talk: Reacciones químicas, polinomios y sus ceros reales

Workshop “Real Polynomials: Counting and Stability” (2021) [On-line due to the COVID-19]
 Given talk: Metric restrictions on the number of real zeros

SIAM Conference on Applied Algebraic Geometry 2021 (2021) [On-line due to the COVID-19]
 Given talk: Breaking the Curse of Infinite Average Run-Time
 in Numerical Real Algebraic Geometry, can the Adaptive Grid Method do the Job?
 Note: Contributed talk, submitted as poster

SIAM Conference on Applied Algebraic Geometry 2021 (2021) [On-line due to the COVID-19]
 Given talk: What’s new in Computational Real Algebraic Geometry? (Introductory Talk)
 Co-speaker: C. Riener

Mathematical Congress of the Americas 2021 (2021) [On-line due to the COVID-19]
 Given talk: What’s new in Computational Real Algebraic Geometry? (Introductory Talk)
 Co-speaker: M. Bender

MEGA 2021: Effective Methods in Algebraic Geometry (2021) [On-line due to the COVID-19]
 Given talk: A numerical algorithm for zero counting. IV: An adaptive speedup

MEGA 2021: Effective Methods in Algebraic Geometry (2021) [On-line due to the COVID-19]
 Given talk: Functional norms, condition numbers and numerical algorithms in algebraic geometry
 Co-speaker: F. Cucker & A. A. Ergür

45th International Symposium on Symbolic and Algebraic Computations (2020) [On-line talk due to the COVID-19 pandemic]
 Given talk: Condition Numbers for the Cube. I: Univariate Polynomials and Hypersurfaces

Milestones Conference of the Thematic Einstein Semester on Algebraic Geometry (2020)
 Given talk: Beyond Gaussians in the probabilistic analysis of condition numbers in algebraic geometry

V Congreso de Jóvenes Investigadores la RSME (2020)
 Given talks: Real zeros of random fewnomials
 Computing the homology of semialgebraic sets in weak single exponential time

Research Workshop on Random Real Algebraic Geometry (2019)
 Given talk: On zeros of random fewnomials (2 talks)

Opening Conference of the Thematic Einstein Semester on Algebraic Geometry (2019)
 Given talk: What is the probabilistic analysis of a condition number?

Complexity of Numerical Computation: A conference in honor of Felipe Cucker (2019)
 Given talk: Average minus Weak Complexity equals Adaptive algorithms Sets

44th International Symposium on Symbolic and Algebraic Computations (2019)
 Given talk: Plantinga-Vegter algorithm takes average polynomial time

SIAM Conference on Applied Algebraic Geometry 2019 (2019)
 Given talk: Farewell to Weyl: Condition-based analysis
 with a Banach norm in numerical algebraic geometry

Workshop MEGAR 2019: Effective Methods in Real Algebraic Geometry (2019)
 Given talk: Numerical Computation of Homology Groups of Closed Semialgebraic Sets

2nd BYMAT Conference (2018)
 Given talk: How many zeros does a random fewnomial system have?

7th BMS Student Conference (2019)

Given talk: How many zeros does a random fewnomial system have?

Random Real Algebraic Geometry Workshop (2019)

Given talk: On Zeros of Random Fewnomials (5 talks series)

1st BYMAT Conference (2018)

Given talk: Computing the Homology of Closed Semialgebraic Sets

6th BMS Student Conference (2018)

Given talk: The Niyogi-Smale-Weinberger Approximation Theorem

Workshop “Algebra meets Numerics: Condition and Complexity” (2017)

Given talk: Computing the Homology of General Semialgebraic Sets

Workshop “Reading Group on Real Algebraic Geometry” (2017)

Given talk: Random real Schubert Calculus and lines on surfaces

5th BMS Student Conference (2017)

Given talk: The shadow of the hidden combinatorics of completely positive operators
on Polynomial Identity Testing

Invited seminar talks

CodEx Seminar

Given talk: Condition Numbers and Probability for Explaining Algorithms

Location: On-line

Date: 30/05/2023

Symbolic Computation Seminar

Given talk: Computing numerically the homology of semialgebraic sets
for Explaining Algorithms in Computational Geometry

Institution: North Carolina State University

Location: Raleigh, USA

Date: 15/10/2022

MINDS & CIS Seminar Series

Given talk: Condition Numbers and Probability
for Explaining Algorithms in Computational Geometry

Institution: MINDS at John Hopkins University

CIS at John Hopkins University

Location: Baltimore, USA

Date: 06/09/2022

Séminaire Calcul Formel at XLIM

Seminar of Symbolic Computation at XLIM

Given talk: A p -adic Descartes solver: the Strassman solver

Institution: Institut de Recherche XLIM

Location: Limoges, France

Date: 16/06/2022

Seminar on Geometry, Probability, and Computing

Given talk: On the complexity of sampling from parametric curves

Institution: The University of Texas at San Antonio

Texas A&M University

University of Missouri

Location: On-line

Date: 05/05/2022

Seminar of the LFANT project-team at Institut de Mathématiques de Bordeaux

Given talk: A p -adic Descartes solver: the Strassman solver

Institution: Institut de Mathématiques de Bordeaux

Location: Bordeaux, France

Date: 12/04/2022

Kolloquium des Fachgebiets Algorithmische Algebra der TU Berlin

(Seminar of the Algorithmic Algebra Group of TU Berlin)

Given talk: What does the condition number of a real polynomial system tell us?

Unexpected answers in the real world

Institution: Technische Universität Berlin

Location: Berlin, Germany

Date: 08/12/2021

Applied Algebra and Analysis Online Seminar

Given talk: New condition-based bounds for the number of real zeros

Institution: Technische Universität Braunschweig

Universität Osnabrück

Location: Braunschweig and Osnabrück, Germany [On-line]

Date: 02/12/2021

Algebra Seminar of the UiT The Arctic University of Norway

Given talk: A sequel for a famous trilogy: accelerating the grid method by adaptive grids

Institution: UiT The Arctic University of Norway

Location: Tromsø, Norway

Date: 28/10/2021

Coloquio de Matemática Aplicada del Instituto de Matemática

(Seminar of Applied Mathematics of the Institute of Mathematics)

Given talk: Finding real zeros a lot faster through an adaptive grid,

Institution: Universidade Federal do Rio de Janeiro

Location: Rio de Janeiro, Brasil [On-line]

Date: 09/07/2021

Seminar of the OURAGAN team of Inria Paris

Given talk: A numerical algorithm for zero counting. IV: An adaptive speedup

Institution: Inria Paris and IMJ-PRG

Location: Paris, France [On-line]

Date: 06/05/2021

Kolloquium des Fachgebiets Algorithmische Algebra der TU Berlin

(Seminar of the Algorithmic Algebra Group of TU Berlin)

Given talk: Towards Finite Expectation

in the Numerical Computation of the Homology of Semialgebraic Sets

Institution: Technische Universität Berlin

Location: Berlin, Germany [On-line]

Date: 10/02/2021

Seminar of the OURAGAN team of Inria Paris

Given talk: Condition Numbers for the Cube. I: Univariate Polynomials and Hypersurfaces

Institution: Inria Paris and IMJ-PRG

Location: Paris, France [On-line]

Date: 30/06/2020

Algebra Seminar of the “Groups, Topology and Applications” Research Group of the UPV/EHU

Given talk: Computing the Homology of Semialgebraic Sets in Weak Exponential Time

Institution: University of the Basque Country (UPV/EHU)

Location: Leioa, Spain

Date: 02/05/2019

Colloquium of the Graduiertekolleg “Facets of Complexity” (GRK 2434)

Given talk: Condition meets Computational Geometry: The Plantinga-Vegter algorithm case
Institution: Freie Universität Berlin
Location: Berlin, Germany
Date: 11/04/2019

Oberseminar des Institut für Algebra und Geometrie der OvGU

(Seminar of the Faculty of Algebra and Geometry of the OvGU)

Given talk: Computing the Homology of Semialgebraic Sets
Institution: Otto von Guericke Universität Magdeburg (OvGU)
Location: Magdeburg, Germany
Date: 16/01/2018

Seminario del Departamento de Matemáticas de la UPV/EHU

(Seminar of the Department of Mathematics of the UPV/EHU)

Given talk: Sobre la complejidad de algunos problemas de pertenencia al cono nulo
Institution: University of the Basque Country (UPV/EHU)
Location: Leioa, Spain
Date: 09/01/2017

Posters

FoCM 2023 Conference (Workshop I.2: Computational Number Theory) (2023)

Poster: A p -adic Descartes solver: the Strassman solver

FoCM 2023 Conference (Workshop II.3: Real-Number Complexity) (2023)

Poster: Condition-based Bounds on the Number of Real Zeros

FoCM 2023 Conference (Workshop III.1: Numerical Linear Algebra) (2023)

Poster: Probabilistic Bounds on Best Rank-One Approximation Ratio

5th Annual Meeting of the SIAM Texas-Louisiana Section (2022)

Poster: Probabilistic Bounds on Best Rank-One Approximation Ratio

2022 Texas Algebraic Geometry Symposium (2022)

Poster: Kushnirenko’s Fewnomials, the Number of Real Zeros and Condition Numbers

47th International Symposium on Symbolic and Algebraic Computations (2022)

Poster: Ultrametric Smale’s α -theory

Topological Data Analysis Workshop (2021)

Poster: Computing the Homology of Semialgebraic Sets via TDA

MEGA 2019: Effective Methods in Algebraic Geometry (2019)

Poster: Computing the Homology Groups of Closed Semialgebraic Sets in Weak Exponential Time

2nd Graduate Student Meeting on Applied Algebra and Combinatorics (2019)

Poster: Computing the Homology Groups of Semialgebraic Sets

Congreso Biental de la Real Sociedad Matemática Española 2019 (2019)

Poster: Computing the Homology Groups of Semialgebraic Sets in Weak Exponential Time

Summer School on Numerical Computing in Algebraic Geometry (2018)

Poster: Computing the Homology Groups of Semialgebraic Sets

QMath Masterclass on “Tensors: Geometry and Quantum Information” (2018)

Poster: Polynomial Identity Testing and the Combinatorics of Completely Positive Operators

Symposium “Bridging European Science II” (2018)

Poster: Computing the “Shape” of Semialgebraic Sets

Tutorial-a-thon of the Applied Algebraic Topology Network (2021)

Given talk: The Niyogi-Smale-Weinberger Theorem & its relatives

“What is...?” Seminar (2018)

Given talk: What is the best voting system?

“What is...?” Seminar (2018)

Given talk: What are semialgebraic sets in context?

“What is...?” Seminar (2017)

Given talk: What are BPP, RP and the other probabilistic complexity classes?

“What is...?” Seminar (2017)

Given talk: What is the length of a potato?

“What is...?” Seminar (2016)

Given talk: What is an Origami Constructible Number?

TEACHING EXPERIENCE

Official teaching

Calculus II (MATH 1224)

Role: Instructor

Teaching load: Approx. 60 hours

Institution: The University of Texas at San Antonio

Date: 01/2023-05/2023

3rd year Bachelor Research Project

“Topological Data Analysis in Computational Real Algebraic Geometry”

Role: Supervisor (together with Elias Tsigaridas)

Supervised Student: Aurèle Bohbot

Institution: École polytechnique

Date: 10/2021-12/2021

Effective Algebraic Geometry Seminar

Role: Organizer (together with Peter Bürgisser and Alperen Ali Ergür)

Teaching load: 12 hours

Organizing group: Fachgebiet Algorithmische Algebra

Institution: Technische Universität Berlin

Date: 18/04/2018-19/07/2018

Courses in an Academic Setting

UTSA Problem-Solving Club

Role: Organizer (together with Christopher Duffer)

Teaching load: Approx. 30 hours

Institution: The University of Texas at San Antonio

Date: 02/2023-05/2023

“Group of units in complete discrete valuation rings” Course

Role: Lecturer

Teaching load: 4 hours

Organizing group: GRECA Research Group

Institution: Faculty of Science and Technology (ZTF-FCT)
of the University of the Basque Country (UPV/EHU)

Date: 11/02/2014-14/02/2014

“P vs. NP and related topics” Seminar

Description: Seminar covering some concepts in complexity theory
Role: Co-organizer (together with Luis Martínez) and main lecturer
Teaching load: 30 hours
Organizing entity: Asociación de Estudiantes de Matemáticas Epsilon-Delta Matematika Ikasleen Elkarte
Institution: Faculty of Science and Technology (ZTF-FCT)
of the University of the Basque Country (UPV/EHU)
Date: 11/2012-05/2013

Other

Private Remedial Teacher

Description: Private lessons to groups of undergraduate students
Courses: 1st year Linear Algebra for mathematicians
2nd year Linear Algebra for mathematicians
1st year Mathematics for non-mathematicians
Teaching load: Approx. 156 hours
Institution: Centro de Estudios INTEC
Date: 10/2013-05/2014

COMMUNICATION/POPULARIZATION OF MATHEMATICS AND SCIENCE

Projects and organized activities

Fête de la Science 2022

(Science Week 2022)

Description: Week with daily activities in English, French or Spanish for the the general public
Organizer: Colegio de España
Comité de Residentes del Colegio de España
Sociedad de Investigadores Españoles en Francia (SIEF)
Role: Co-organizer representing SIEF
Hosting Institution: Colegio de España of the Cité Internationale Universitaire de Paris
Date: 02-07/05/2022

Revista π kasle Aldizkaria

(Mathematics Students' Magazine π kasle)

ISSN: 2174-9027 (digital edition)
2255-5714 (printed edition)

Founders: Ricardo Grande
Josué Tonelli-Cueto

Role: Member of the Editorial Committee
Cover designer and desktop publisher (from the 1st to the 9th issue)
Social media manager

Recognitions: First prize in the
III Premios al alumnado que mejor ha difundido la imagen de la UPV/EHU
Honor Mention in the 14th Edition of *Ciencia en Acción*

Hosting Institution: Faculty of Science and Technology (ZTF-FCT)
of the University of the Basque Country (UPV/EHU)
Date: 09/2011-07/2014

π kasle's Mathematics, Magic and Mystery Workshop

Description: Workshop (in Spanish) covering topics related to magic and mathematics
Organizing entity: Revista *π kasle* Aldizkaria
Organizer: Ricardo Grande Izquierdo
Josué Tonelli-Cueto
Speakers: Pedro Alegría Ezquerria
Juan Carlos Ruiz de Arcaute
Hosting Institution: Faculty of Science and Technology (ZTF-FCT)
of the University of the Basque Country (UPV/EHU)
Location: Leioa, Spain
Dates: 09/05/2014 and 30/05/2014

π kasle's Martin Gardner Celebration of Mind

Description: Day of activities (in Spanish) in commemoration of Martin Gardner
Organizing entity: Revista *π kasle* Aldizkaria
Organizer: Josué Tonelli-Cueto
Hosting Institution: Faculty of Science and Technology (ZTF-FCT)
of the University of the Basque Country (UPV/EHU)
Location: Leioa, Spain
Dates: 23/10/2013

Activities

Radio Interview “Sistemas de ecuaciones, ¿cómo resolverlas?” (in Spanish)

Interviewer: Antonio G. Armas
Program: “Investigadores por el Mundo” (number 159)
Medium: Radio Libertad FM
Date: 08/05/2022
Link: go.ivoox.com/rf/86768659

Magic & Mathematics Stand* (in English and Spanish) at **Fête de la Science 2022*

Description: Stand open to the general public
in which I performed and explained magic tricks based on mathematics
Organizing entity: Colegio de España
Comité de Residentes del Colegio de España
Sociedad de Investigadores Españoles en Francia (SIEF)
Hosting Institution: Colegio de España of the Cité Internationale Universitaire de Paris
Date: 07/05/2022

Divulgative video (in Spanish)

“Semi... ¿qué? Las múltiples formas de lo semialgebraico y cómo determinarlas”

Description: Divulgative video about my research in Spanish
Hosting event: Congreso Online Divulga NextGen (1ª edición)
Date: 05/2021
Link: www.youtube.com/watch?v=ME3BuPjSa-4

Tour Guide (in Spanish) at the *Astronomía Emakume/Con ‘A’ de Astrónomas* Exhibition

Description: Exhibition about female astronomers and astronomy

Curator: Eulalia Pérez Sedeño

Josefina Ling

Organizer: Marta Macho

Raúl Ibañez

Pedro Alegría

Hosting institution: University of the Basque Country (UPV/EHU)

Location: Bilbao, Spain

Dates: 06/10/2011-11/11/2011

Web page: www.ehu.es/astronomasbilbao/

Tour Guide (in Spanish) at the *RSME-IMAGINARY BILBAO* Exhibition

Description: Spanish tour of the exhibition *IMAGINARY* about algebraic surfaces

Organizing entity: Real Sociedad Matemática Española (RSME)

Organizer: Marta Macho

Raúl Ibañez

Pedro Alegría

Hosting institution: University of the Basque Country (UPV/EHU)

Location: Bilbao, Spain

Dates: 05/05/2011-26/05/2011

Web page: www.ehu.es/imaginary/

Articles

- J. Tonelli-Cueto. (2021, May). Semi... ¿qué? Las múltiples formas de lo semialgebraico y cómo determinarlas [Spanish] (Semi... what? The multiple shapes of the semialgebraic and how to determine them). In *Libro de Resúmenes de Divulga NextGen I (26, 27 y 28 de mayo de 2021)* (pp. 42–43). Zenodo. doi:10.5281/zenodo.4718329
- J. Tonelli-Cueto. (2015, October). Emmy Noether, un retrato alfabético [Spanish] (Emmy Noether, an alphabetic portrait). *Blog “mujeres con ciencia”*. 2015-10-05.

Formative activities and courses

IMSI’s MathComms Bootcamp

1: Storytelling and Narrative

2: How to Write for a General Audience

3: Job Talks & Stage Presence

Organizer: Institute for Mathematical and Statistical Innovation

Speaker: Sadie Witkowski

Location: On-line

Dates: 03/02/2022, 11/03/2022, 04/05/2022

SERVICE

Referee/Reviewer (*Current and past reviews in alphabetical order*)

Journal: Annals of Mathematics and Artificial Intelligence
Forum of Mathematics, Sigma
Foundations of Computational Mathematics
Journal of Complexity
Mathematics of Computation
SIAM Journal on Applied Algebra and Geometry (SIAGA)

Conference: ISSAC 2020
MEGA2019

Other: MathSciNet

Member of the Short Communication Committee at

48th International Symposium on Symbolic and Algebraic Computations (ISSAC'23)

Description: Evaluation of poster submission and decision of best poster award for ISSAC'23

Committee: Eunice Y. S. Chan
Beatriz Pascual Escudero
Sebastian Falkensteiner
Juana Sendra (Chair)
Josué Tonelli-Cueto

Date: 01/2023-07/2023

Vocal Estudiante del Comité de Evaluación de Titulaciones de UNIBASQ en el Area de Ciencias

(Student Vocal of the Committee of Evaluation of Degrees of UNIBASQ in the Area of Science)

Description: Elaboration of evaluation reports of science degrees
taught in the Basque University System

Institution: Agency for Quality of the Basque University System (UNIBASQ)

Date: 04/2015-03/2018

BMS Student Representative

Institution: Berlin Mathematical School (BMS)

Dates: 01/2017-12/2017

Asociación de Estudiantes de Matemáticas Epsilon-Delta Matematika Ikasleen Elkartea

(An association of mathematics students in the University of the Basque Country)

Labour: Secretary

Dates: 09/2012-05/2013

GRANTS AND AWARDS

Research Scholarships

FSMP Postdoctoral Fellowship

Hosting institution: OURAGAN team at Inria Paris and IMJ-PRG

Awarding Institution: Fondation Sciences Mathématiques de Paris (FSMP)

Duration: 01/10/2020-30/09/2022

BMS Doctoral Fellowship funded by the Einstein Foundation Berlin

Framework: Prof. Felipe Cucker's Einstein Visiting Fellowship

Complexity and accuracy of numerical algorithms in algebra and geometry

Awarding institution: Berlin Mathematical School (BMS)

Technische Universität Berlin

Funding Entity: Einstein Foundation Berlin

Duration: 01/01/2017-31/12/2019

Beca de "la Caixa" para estudios de posgrado en universidades europeas. Convocatoria 2014

(Scholarship of "la Caixa" for graduate studies in Europe. 2014 Call)

Purpose: Completion of the BMS Phase I

Awarding institution: "la Caixa" Foundation

Funding institution: "la Caixa" Foundation
German Academic Exchange Service (DAAD)

Duration: 01/10/2014-31/07/2016

Beca de Colaboración, para el curso 2013-2014

(Collaboration Scholarship for the academic year 2013-2014)

Purpose: Introduction to research with a researcher of the Basque University System

Topic: Pro- p groups and p -adic analytic groups

Mentor: Gustavo Adolfo Fernández Alcober

Hosting institution: University of the Basque Country (UPV/EHU)

Awarding institution: Gobierno Vasco (Basque Government)

Duration: 01/11/2013-30/06/2014

Beca de Introducción a la Investigación del Programa JAE

(Research Introduction Scholarship of the JAE Program)

Purpose: Introduction to research with a researcher of CSIC

Topic: Class Field Theory

Mentor: Andrei Jaikin-Zapirain

Hosting institution: Instituto de Ciencias Matemáticas (ICMAT)

Awarding institution: Consejo Superior de Investigaciones Científicas (CSIC)

Duration: 01/07/2013-30/09/2013

Awards

MATH+ Dissertation Award 2020

Reason: Doctoral thesis

Awarding Institution: Berlin Mathematics Research Center MATH+
Berlin Mathematical School (BMS)
Einstein Foundation Berlin

Date: 12/2021

3. Preis im Tiburtius Preis 2020 – Preis der Berliner Hochschulen

(3rd Prize in the Tiburtius Prizes 2020 of the Berlin Universities)

Reason: Doctoral thesis

Awarding Institution: State Conference of Rectors and Presidents of Berlin Universities (LKRP)

Date: 10/2020

SIAM Student Travel Award

Description: To attend the SIAM Conference on Applied Algebraic Geometry 2019

Awarding Institution: SIAM

Date: 07/2019

Special Award to Young Researchers presenting Posters at MEGA2019

Description: Three special awards were given to young researchers presenting posters

Awarding Conference: MEGA 2019: Effective Methods in Algebraic Geometry

Date: 06/2019

Primer Premio en los Premios Nacionales Fin de Carrera

(First Prize in the End of Studies National Awards)

Reason: Academic achievements during the Licenciatura en Matemáticas

Awarding Institution: Spanish Government

Date: 07/2018

Premio Extraordinario Fin de Carrera de la Licenciatura en Matemáticas

(End of Degree Extraordinary Award of the Licenciatura en Matemáticas)

Reason: Academic achievements during the Licenciatura en Matemáticas

Awarding Institution: Faculty of Science and Technology (ZTF-FCT)
of the University of the Basque Country (UPV/EHU)

Date: 06/2015

Mención de Honor en la modalidad “Trabajos de Divulgación Científica. Medios de Comunicación” de la XIV Edición de Ciencia en Acción

(Honor Mention in the modality “Popular Science work. Media”
of the 14th Edition of Ciencia en Acción)

Co-awardee: Ricardo Grande

Reason: Editing the Mathematics Students’ Magazine Pikasle

Awarding Institution: Consejo Superior de Investigaciones Científicas (CSIC)
Instituto de Ciencias Matemáticas (ICMAT)
Real Sociedad Española de Física (RSEF)
Sociedad Geológica de España
Universidad Nacional de Educación a Distancia (UNED)

Date: 06/10/2013

III Premios al alumnado que mejor ha difundido la imagen de la UPV/EHU

(III Awards to students who best spread the image of the UPV/EHU)

Won award: **1st prize in the category of science**

due to editing the magazine Pikasle
together with Ricardo Grande.

1st prize in the category of social sciences and legal studies

due to winning the IV University Debate League of the G9 Group
together with fellow teammates.

Awarding Institution: University of the Basque Country (UPV/EHU)

Date: 29/11/2012

Winner in the IV Liga de Debate Universitario Grupo G9

(IV University Debate League of the G9 Group)

Description: Competition of debate between several universities in the G9 University Group

Team: Ion Baratas

Leire Caballero

Jesús Ángel Ibarreche

Juan Sandín

Josué Tonelli-Cueto

Hosting institution: University of Oviedo

Date: 29/02/2012-02/03/2012

Accésit en el Concurso de trabajos sobre Sofía Kovalevskaya

(Special Mention in the contest of works about Sophia Kovalevskaya)

Awarding Institution: University of the Basque Country (UPV/EHU)

Date: 24/06/2011

Research Stays

Research Visit to Cordian Riener in Norway

Goal: Discussion for future projects
 Institution: UiT The Arctic University of Norway
 Location: Tromsø, Norway
 Dates: 25/10/2021-02/11/2021

Research Visit to Elias Tsigaridas in France

Goal: Discussion for future projects
 Institution: IMJ-PRG
 Location: Paris, France
 Dates: 19/01/2020-25/01/2020

Research Visit to Elias Tsigaridas in France

Goal: Discussion for future projects
 Institution: IMJ-PRG
 Location: Paris, France
 Dates: 8/12/2019-12/12/2019

Research Visit to Elias Tsigaridas in France

Goal: Discussion for future projects
 Institution: LIP6 (Laboratoire d'Informatique de Paris 6)
 Location: Paris, France
 Dates: 12/05/2019-17/05/2019

Research Stay with Felipe Cucker in Hong Kong

Goal: Working with one of the PhD advisors
 Institution: CityU Hong Kong
 Location: Hong Kong, China
 Dates: 15/03/2019-01/04/2019

Research Visit to Nicolai Vorobjov in England

Goal: Discussion of a theorem of Gabrielov and Vorobjov related to the PhD work
 Institution: University of Bath
 Location: Bath, England
 Dates: 27/10/2018-03/11/2018

Research Stay with Felipe Cucker in France

Goal: Working with one of the PhD advisors
 Location: Tuleries d'Affiac, France
 Dates: 01/10/2018-15/10/2018

Research Stay with Felipe Cucker in Hong Kong

Goal: Working with one of the PhD advisors
 Institution: CityU Hong Kong
 Location: Hong Kong, China
 Dates: 10/04/2018-28/04/2018

Research Stay with Felipe Cucker in Hong Kong

Goal: Working with one of the PhD advisors
 Institution: CityU Hong Kong
 Location: Hong Kong, China
 Dates: 21/11/2017-08/12/2017

Research Stay with Felipe Cucker in Hong Kong

Goal: Working with one of the PhD advisors
Institution: CityU Hong Kong
Location: Hong Kong, China
Dates: 13/01/2017-26/01/2017

Attended conferences

VII Congreso de Jóvenes Investigadores la RSME

(RSME's 7th Congress of Young Researchers)

Organizer: Real Sociedad Matemática Española (RSME)
Hosting Institution: University of the Basque Country (UPV/EHU)
Basque Center for Applied Mathematics (BCAM)
Location: Bilbao, Spain
Date: 13/01/2025-17/01/2025

SIAM Conference on Applied Algebraic Geometry 2023

Organizer: SIAM Activity Group on Algebraic Geometry
Hosting Institution: Eindhoven University of Technology
Location: Eindhoven, The Netherlands
Date: 10/07/2023-14/07/2023

FoCM 2023 Conference

Organizer: FoCM Society
Hosting Institution: Sorbonne Université
Location: Paris, France
Date: 12/06/2023-21/06/2023

Fifth Bilbao Data Science Workshop (BiDAS 2023)

Organizer: Basque Center for Applied Mathematics (BCAM)
Hosting Institution: Basque Center for Applied Mathematics (BCAM)
Location: Bilbao, Spain
Date: 08/06/2023-09/06/2023

Workshop "Random Algebraic Geometry" (23w5070)

Organizer: Paul Breiding
Sonja Petrovic
Gregory G. Smith
Hosting Institution: Banff International Research Station for Mathematical Innovation and Discovery
Location: Banff, Canada
Date: 16/04/2023-21/04/2023

VI Congreso de Jóvenes Investigadores la RSME

(VI Conference of Young Researchers of the RSME)

Organizer: Real Sociedad Matemática Española (RSME)
Hosting Institution: Universidad de León
Location: León, Spain
Date: 06/02/2023-11/02/2023

Joint Mathematics Meetings 2023

Organizer: American Institute of Mathematics (AIM)
American Mathematical Society (AMS)
American Statistical Association (ASA)
Association for Symbolic Logic (ASL)
Association for Women in Mathematics (AWM)
Consortium for Mathematics and its Applications (COMAP)
International Linear Algebra Society (ILAS)
Julia Robinson Mathematics Festival (JRMF)
Mathematical Sciences Research Institute (MSRI)
National Association of Mathematicians (NAM)
Pi Mu Epsilon (PME)
Pro Mathematica Arte (PMA)
Society for Industrial and Applied Mathematics (SIAM)
Association for LGBT Mathematicians (Spectra)
Transforming Post-Secondary Education in Mathematics (TPSE)

Location: Boston, Massachusetts, USA
Date: 4/01/2023-7/01/2023

II Encuentro RSME-UMA

Organizer: Real Sociedad Matemática Española (RSME)
Unión Matemática Argentina (UMA)

Hosting Institution: Universidad de Málaga
Location: Ronda, Spain
Date: 12/12/2022-16/12/2022

4th BYMAT Conference

Organizer: Elena López Navarro
Carlos Andreu Villaroig
Vicente José Bevia Escrig
Sorina Madalina Sferle
Ana Navarro Quiles
Cristina Pérez Diukina

Hosting Institution: Universitat de València
Universitat Politècnica de València

Location: Valencia, Spain (On-line)
Date: 09/11/2022-11/11/2022

5th Annual Meeting of the SIAM Texas-Louisiana Section

Organizer: Society for Industrial and Applied Mathematics (SIAM)

Hosting Institution: University of Houston
Location: Houston, USA
Date: 4/11/2022-6/11/2022

17th Annual Texas Undergraduate Mathematics Conference

Organizer: Mathematical Association of America (MAA) [Texas Section]

Hosting Institution: The University of Texas at Austin
Location: Austin, USA
Date: 28/10/2022-29/10/2022

8th Iberian Mathematical Meeting

Organizer: Real Sociedad Matemática Española (RSME)
Sociedade Portuguesa de Matemática (SPM)

Hosting Institution: Universidad de Sevilla
Location: Sevilla, Spain
Date: 5/10/2022-7/10/2022

2022 Texas Algebraic Geometry Symposium

Organizer: Rice University
Texas A&M University
University of Texas at Austin

Hosting Institution: Texas A&M University

Location: College Station, USA

Date: 30/09/2022-02/10/2022

XXI Lluís Santaló School: *Random and Deterministic Point Configurations*

Organizer: Carlos Beltrán
Jordi Marzo

Hosting Institution: Real Sociedad Matemática Española (RSME)
Universidad Internacional Menéndez Pelayo (UIMP)

Location: Santander, Spain

Date: 11/07/2022-15/07/2022

47th International Symposium on Symbolic and Algebraic Computations (ISSAC 2022)

Organizer: ACM SIGSAM

Hosting Institution: Université de Lille

Location: Lille, France

Date: 4/07/2020-7/07/2020

MEGA 2022: Effective Methods in Algebraic Geometry

Organizer: MEGA Executive Committee
MEGA Organizing Committee

Hosting Institution: Pedagogical University of Krakow

Location: Kraków, Poland

Date: 20/06/2021-24/06/2021

2022 Mathematical Research Communities Conference***Data Science at the Crossroads of Analysis, Geometry, and Topology***

Organizer: Marina Meila
Facundo Mémoli
Jose Perea
Nicolás García Trillos
Soledad Villar

Hosting Institution: American Mathematical Society (AMS)

Location: Beaver Hollow Conference Center, Java Center, New York, USA

Date: 29/05/2022-4/06/2022

Congreso Bienal de la Real Sociedad Matemática Española 2022***(Biennial Congress of the Spanish Royal Mathematical Society)***

Organizer: Real Sociedad Matemática Española (RSME)

Hosting Institution: Universidad Castilla-La Mancha (UCLM)

Location: Ciudad Real, Spain

Date: 17/01/2022-21/01/2022

Workshop “Real Polynomials: Counting and Stability” (21w5117)

Organizer: Frédéric Bihan
Timo de Wolff
Alicia Dickenstein
Thorsten Theobald

Hosting Institution: Banff International Research Station for Mathematical Innovation and Discovery

Location: Casa Matemática Oaxaca, Oaxaca, Mexico (On-line)

Date: 18-22/10/2021

SIAM Conference on Applied Algebraic Geometry 2021

Organizer: SIAM Activity Group on Algebraic Geometry
Hosting Institution: Texas A&M University
Location: College Station, Texas, USA (On-line)
Date: 16/08/2021-20/08/2021

Mathematical Congress of the Americas 2021

Organizer: Mathematical Council of the Americas (MCoFA)
Hosting Institution: Universidad de Buenos Aires
Location: Buenos Aires, Argentina (On-line)
Date: 07/06/2021-11/06/2021

MEGA 2021: Effective Methods in Algebraic Geometry

Organizer: MEGA Executive Committee
MEGA Organizing Committee
Hosting Institution: UiT The Arctic University of Norway
Location: Tromsø, Norway (On-line)
Date: 17/06/2021-21/06/2021

Congreso Online Divulga NextGen (1^a edición)

(Online Conference Divulga NextGen (1st edition))

Organizer: Lucía Olmo García
Enrique Javier Carrasco Correa
Gloria Domínguez Rodríguez
Elena Sánchez López
Rafael Carlos Estévez Toledano
Beatriz María Fresco Cala

Location: On-line
Date: 26/05/2021-28/05/2021

Topological Data Analysis Workshop

Organizer: Brittany Fasy
Kathryn Hess
Matthew Kahle
Sayan Mukherjee
Jose Perea
Hosting Institution: Institute for Mathematical and Statistical Innovation
Location: Chicago, Illinois, USA (On-line)
Date: 26/04/2021-30/04/2021

3rd BYMAT Conference

Organizer: Ana Navarro Quiles
Eva Primo Tárraga
Clara Burgos Simón
David Martínez Rodríguez
Elena López Navarro
Alberto Espuny Díaz
Miguel Reula Martín
José Alberto Conejero Casares
Patricio Almirón Cuadros
Hosting Institution: Universitat de València
Universitat Politècnica de València
Location: Valencia, Spain (On-line)
Date: 01/12/2020-03/12/2020

CO@Work 2020

Organizer: Timo Berthold
Thorsten Koch

Hosting Institution: Technische Universität Berlin
Zuse Institut Berlin

Location: Berlin, Germany (On-line)

Date: 14/09/2020-25/09/2020

45th International Symposium on Symbolic and Algebraic Computations (ISSAC 2020)

Organizer: ACM SIGSAM

Location: Kalamata, Greece (On-line)

Date: 20/07/2020-23/07/2020

Milestones Conference of the Thematic Einstein Semester on Algebraic Geometry

Organizer: Matías Bender
Peter Bürgisser

Hosting Institution: Zuse Institut Berlin

Location: Berlin, Germany

Date: 27/02/2020-28/02/2020

V Congreso de Jóvenes Investigadores la RSME

(V Conference of Young Researchers of the RSME)

Organizer: Real Sociedad Matemática Española (RSME)

Hosting Institution: Universitat Jaume I

Location: Castelló, Spain

Date: 27/01/2020-31/01/2020

Research Workshop on Random Real Algebraic Geometry

Organizer: Alp Bassa
Turgay Bayraktar
Özgür Kiisel
Ferit Öztürk
Josué Tonelli-Cueto

Hosting Institution: Middle East Technical University - Northern Cyprus Campus

Location: Güzelyurt, Northern Cyprus

Date: 21/10/2019-26/10/2019

Opening Conference of the Thematic Einstein Semester on Algebraic Geometry

Organizer: Mario Kummer
Angela Ortega
Andrea Petracchi
Karin Schaller

Hosting Institution: Freie Universität Berlin

Location: Berlin, Germany

Date: 07/10/2019-11/10/2019

Complexity of Numerical Computation: A conference in honor of Felipe Cucker

Organizer: Peter Bürgisser
Teresa Krick
Javier Peña
Stephen Smale

Hosting Institution: Berlin-Brandenburgische Akademie der Wissenschaften

Location: Berlin, Germany

Date: 03/06/2019-05/06/2019

44th International Symposium on Symbolic and Algebraic Computations (ISSAC 2019)

Organizer: ACM SIGSAM

Hosting Institution: Beihang University

Location: Beijing, China

Date: 15/07/2019-18/07/2019

SIAM Conference on Applied Algebraic Geometry 2019

Organizer: SIAM Activity Group on Algebraic Geometry

Hosting Institution: Universität Bern

Location: Bern, Switzerland

Date: 09/07/2019-13/07/2019

Workshop MEGAR 2019: Effective Methods in Real Algebraic Geometry

Organizer: Mariemi Alonso

Carlos Andradas

Antonio Díaz-Cano

M. Jesús de la Puente

M. Pilar Vélez

M. Ángeles Zurro

Hosting Institution: Universidad Complutense de Madrid

Location: Madrid, Spain

Date: 21/06/2019-22/06/2019

MEGA 2019: Effective Methods in Algebraic Geometry

Organizer: MEGA Executive Committee

MEGA Organizing Committee

Hosting Institution: Universidad Complutense de Madrid

Location: Madrid, Spain

Date: 17/06/2019-21/06/2019

Noether Konferenz 2019: Wie kommt das Neue in die Welt?

(Noether Conference 2019: How does the New come in the World?)

Organizer: Berlin Mathematics Research Center MATH+

Zentrale Frauenbeauftragte der Freien Universität Berlin

Max-Planck-Institut für Wissenschaftesgeschichte

Location: Berlin, Germany

Date: 03/06/2019-05/06/2019

2nd BYMAT Conference

Organizer: Alberto Redondo Hernández

Ángela Capel

Blanca Fernández Besoy

Jesús Ocáriz

Makrina Agaoglou

Patricia Conteras-Tejada

Roi Naveiro

Teresa Luque

Hosting Institution: Instituto de Ciencias Matemáticas (ICMAT)

Location: Madrid, Spain

Date: 20/05/2019-24/05/2019

7th BMS Student Conference

Organizer: Simona Boyadzhiyska
Candan Güdücü
Michael Rothgang
Massimo Secci
Nicola Vassena

Hosting Institution: Berlin Mathematical School (BMS)

Location: Berlin, Germany

Date: 20/02/2019-22/02/2019

2nd Graduate Student Meeting on Applied Algebra and Combinatorics

Organizer: Tim Seynnaeve
Rodica Dinu
Giulia Codenotti
Frank Röttger

Hosting Institution: Max-Planck-Institut für Mathematik in der Naturwissenschaften

Location: Leipzig, Germany

Date: 18/02/2019-20/02/2019

Congreso Bienal de la Real Sociedad Matemática Española 2019

(Biennial Congress of the Spanish Royal Mathematical Society)

Organizer: Real Sociedad Matemática Española (RSME)

Hosting Institution: Universidad de Cantabria (UC)

Location: Santander, Spain

Date: 04/02/2019-08/02/2019

Random Real Algebraic Geometry Workshop

Organizer: Ali Ula Özgür Kiisel

Hosting Institution: Nesin Matematik Köyü (Nesin Mathematical Village)

Location: Nesin Matematik Köyü, Turkey

Date: 21/01/2019-27/01/2019

6th Heidelberg Laureate Forum

Organizer: Heidelberg Laureate Forum Foundation (HLFF)

Hosting Institution: Heidelberg University

Location: Heidelberg, Germany

Date: 23/09/2018-28/09/2018

Summer School on Numerical Computing in Algebraic Geometry

Organizer: Mario Kummer
Paul Breiding
Yue Ren
Emre Sertöz

Hosting Institution: Max-Planck-Institut für Mathematik in der Naturwissenschaften

Location: Leipzig, Germany

Date: 13/08/2018-17/08/2018

QMath Masterclass on “Tensors: Geometry and Quantum Information”

Organizer: Centre for the Mathematics of Quantum Theory (QMATH)
Niels Bohr International Academy (NBIA)

Hosting Institution: University of Copenhagen

Location: Copenhagen, Denmark

Date: 18/06/2018-22/06/2018

Workshop “Optimization, Complexity and Invariant Theory”

Organizer: Avi Wigderson

Hosting Institution: Institute for Advance Studies (IAS)

Location: Princeton, USA

Date: 04/06/2018-08/06/2018

Symposium “Bridging European Science II”

Organizer: Sociedad de Científicos Españoles en la República Federal de Alemania (CERFA)
Comunidad de Científicos Españoles en Dinamarca (CED)
Asociación de Científicos Españoles en Suecia (CED)

Hosting Institution: Spanish Embassy in Berlin

Location: Berlin, Germany

Date: 02/06/2018

1st BYMAT Conference

Organizer: David Alfaya
Ángela Capel
Patricia Conteras-Tejada
Roi Naveiro
Jesús Ocáriz

Hosting Institution: Instituto de Ciencias Matemáticas (ICMAT)

Location: Madrid, Spain

Date: 07/05/2018-09/05/2018

6th BMS Student Conference

Organizer: Héctor Andrade Loarca
Qiao Luo
Brent Moran
Yuya Tokuta
Josué Tonelli-Cueto

Hosting Institution: Berlin Mathematical School (BMS)

Location: Berlin, Germany

Date: 21/02/2018-23/02/2018

Workshop “Algebra meets Numerics: Condition and Complexity”

Organizer: Peter Bürgisser
Felipe Cucker

Hosting Institution: Technische Universität Berlin

Location: Berlin, Germany

Date: 06/11/2017-07/11/2017

FoCM 2017 Conference (Blocks B and C)

Organizer: FoCM Society

Hosting Institution: Universitat de Barcelona

Location: Barcelona, Spain

Date: 13/07/2017-19/07/2017

Workshop “Reading Group on Real Algebraic Geometry”

Organizer: Kristin Shaw
Rainer Sinn
Mario Kummer

Hosting Institution: Max-Planck-Institut für Mathematik in der Naturwissenschaften

Location: Leipzig, Germany

Date: 03/07/2017-07/07/2017

Workshop “Polynomials and Polytopes”

Organizer: Bernd Sturmfels
Timo de Wolff

Hosting Institution: Technische Universität Berlin

Location: Berlin, Germany

Date: 10/06/2017

Chow Lectures 2017

Organizer: Karim Adiprasito
Christian Lehn
Mateusz Michalek
Matthias Schwarz

Hosting Institution: Max-Planck-Institut für Mathematik in der Naturwissenschaften

Location: Leipzig, Germany

Date: 22/05/2017-24/05/2017

BCAM Course “Quantum Information Theory”

Organizer: Anna Vershynina

Hosting Institution: Basque Center for Applied Mathematics (BCAM)

Location: Bilbao, Spain

Date: 13/03/2017-17/03/2017

5th BMS Student Conference

Organizer: Qianheng Chen
Jan Hackfeld
Lauri Loiskekoski
Alexandra Munteanu
András Tóbiás

Hosting Institution: Berlin Mathematical School (BMS)

Location: Berlin, Germany

Date: 22/02/2017-24/02/2017

Workshop “Tensors: Algebra meets Numerics”

Organizer: Wolfgang Hackbusch
Bernd Sturmfels
André Uschmajew

Hosting Institution: Max-Planck-Institut für Mathematik in der Naturwissenschaften

Location: Leipzig, Germany

Date: 12/12/2016-14/12/2016

7th European Congress of Mathematics

Organizer: Deutsche Mathematiker-Vereinigung (DMV)
Gesellschaft für Angewandte Mathematik und Mechanik (GAMM)
MATHEON
ECMath
Berlin Mathematical School (BMS)

Hosting Institution: Technische Universität Berlin

Location: Berlin, Germany

Date: 18/07/2016-22/07/2016

4th BMS Student Conference

Organizer: Daniele Agostini
Mark Curran
Efsthia Katsigianni
Eva Martínez Romero
Nevena Pali

Hosting Institution: Berlin Mathematical School (BMS)

Location: Berlin, Germany

Date: 17/02/2016-19/02/2016

Hilbert Bernays Summer School on Logic and Computation

Organizer: Georg-August-Universität Göttingen

Hosting Institution: Georg-August-Universität Göttingen

Location: Göttingen, Germany

Date: 26/07/2015-01/08/2015

2015 Santaló Summer School on “Number theory and arithmetic geometry”

Organizer: Antonio Rojas

José M. Tornero

Hosting Institution: Real Sociedad Matemática Española (RSME)

Universidad Internacional Menéndez Pelayo (UIMP)

Location: Santander, Spain

Date: 13/07/2015-17/07/2015

BMS Summer School 2015 on “Convex geometry – discrete and computational”

Organizer: Martin Henk

Raman Sanyal

Hosting Institution: Berlin Mathematical School (BMS)

Location: Berlin, Germany

Date: 29/06/2015-10/07/2015

Homological Algebra Workshop

Organizer: Andrei Jaikin

Jon González

Hosting Institution: Instituto de Ciencias Matemáticas (ICMAT)

Location: Madrid, Spain

Date: 02/03/2015-06/03/2015

3rd BMS Student Conference

Organizer: Irena Bojarovska

Gregor Bruns

Juan Orduz

Emre Sertöz

Hosting Institution: Berlin Mathematical School (BMS)

Location: Berlin, Germany

Date: 18/02/2015-20/02/2015

10th AIMS Conference on Dynamical Systems, Differential Equations and Applications

Organizers: American Institute of Mathematical Sciences (AIMS)

Instituto de Ciencias Matemáticas (ICMAT)

Universidad Autónoma de Madrid (UAM)

University of North Carolina at Wilmington

Location: Madrid, Spain

Date: 07/07/2014-11/07/2014

Note: Attended as student volunteer

First Joint International Meeting of the Italian and Spanish Mathematical Societies

Societies: RSME (Royal Spanish Mathematical Society)

SCM (Catalan Mathematical Society)

SEMA (Spanish Society for Applied Mathematics)

SIMAI (Italian Society for Applied and Industrial Mathematics)

UMI (Italian Mathematical Union)

Institution: University of the Basque Country (UPV/EHU)

Location: Bilbao and Leioa, Spain

Date: 30/06/2014-04/07/2014

Note: Attended as student volunteer

2nd BMS Student Conference

Organizer: BMS Student Representatives

Hosting Institution: Berlin Mathematical School (BMS)

Location: Berlin, Germany

Date: 19/02/2014-21/02/2014

VI Edición de la Escuela JAE de Matemáticas

(6th Edition of the JAE School of Mathematics)

Organizer: Instituto de Ciencias Matemáticas (ICMAT)

Hosting Institution: ICMAT

Location: Madrid, Spain

Date: 01/07/2013-26/07/2013

XIII Encuentro Nacional de Estudiantes de Matemáticas

(*XIII (Spanish) National Meeting of Mathematics Students*)

Organizer: Asociación Nacional de Estudiantes de Matemáticas (ANEM)

(*(Spanish) National Association of Students of Mathematics*)

Location: Murcia, Spain

Date: 23/07/2012-29/07/2012

Undergraduate Summer School Program of the

2012 PCMI Summer Session “Geometric Group Theory”

Organizer: Aaron Bertram

Hosting Institution: IAS/Park City Mathematics Institute (PCMI)

Location: Park City, USA

Date: 01/07/2012-21/07/2012

Undergraduate Summer School Program of the

2011 PCMI Summer Session “Moduli Spaces of Riemann Surfaces”

Organizer: Andrew Bernoff

Aaron Bertram

Hosting Institution: IAS/Park City Mathematics Institute (PCMI)

Location: Park City, USA

Date: 03/07/2011-23/07/2011

Coloquio RSME 2011: Las dos ideas de Sofia Kovalevskaya

(Colloquia RSME 2011: The Two Ideas of Sofia Kovalevskaya)

Organizer: RSME (Royal Spanish Mathematical Society)

Hosting Institution: University of the Basque Country (UPV/EHU)

Speaker: Michèle Audin

Location: Bilbao, Spain

Date: 24/06/2011

Jornadas RSME 2011: Los Problemas del Milenio

(Conferences RSME 2011: The Millennium Prize Problems)

Organizer: RSME (Royal Spanish Mathematical Society)

Hosting Institution: Universitat de Barcelona (UB)

Location: Barcelona, Spain

Date: 01/06/2011-03/06/2011

Other

10th Annual San Antonio Postdoctoral Research Forum

Organizer: Naval Medical Research Unit San Antonio

Texas Biomedical Research Institute

United States Army Institute of Surgical Research

UT Health San Antonio

University of Texas at San Antonio

Hosting Institution: UT Health San Antonio

Location: San Antonio, USA

Date: 20/09/2022

dramaTOURgia: un viaje teatral a través de España

(*dramaTOURgia: a theatrical voyage throughout Spain*)

Description: End-of-course representation showcasing scenes worked during the course *Teatro Español à Paris*

Director: Luzía Eviza

Venue: Comédie Oberkampf

Location: Paris, France

Dates: 30/06/2022

Teatro Español à Paris

(*Spanish Theater in Paris*)

Description: Once-a-week theater classes in Spanish

Instructor: Luzía Eviza

Location: Paris, France

Dates: 10/2020-06/2022

Arctic MSCA Symposium

Organizer: Theresa Mikalsen

Kata Bohus

Hosting Institution: UiT The Arctic University of Norway

Location: Tromsø, Norway

Dates: 8/06/2022-10/06/2022

Taller “Baterías: Presente y Futuro”

(*Workshop “Batteries: Present and Future”*)

Organizer: EHUalumni

Speaker: Jon Serrano-Sevillano

Location: On-line

Dates: 11/05/2022

Jornada SIEF y Asamblea General 2021

(*2021 SIEF Conference and General Assembly*)

Organizer: Sociedad de Investigadores Españoles en Francia (SIEF)

Hosting Institution: Colegio de España en París

Location: Paris, France

Dates: 27/11/2021

Jornada y Asamblea Anual 2020 de la SIEF

(*2020 Conference and Annual Assembly of the SIEF*)

Organizer: Sociedad de Investigadores Españoles en Francia (SIEF)

Location: France (On-line)

Dates: 28/11/2020

Science+ 2017, ERA Career Day Bilbao

Description: Career days where talks and information about professional possibilities for scientists were given

Organizer: Chair of Scientific Culture of the University of the Basque Country
Bizkaia Talent

Spanish Foundation for Science and Technology (FECYT)

Institution: University of the Basque Country (UPV/EHU)

Location: Bilbao, Spain

Dates: 18/09/2017-20/09/2017

Participant at *Slam the library #2 - Poetry Slam*

Description: Poetry slam organized as part of the Lange Nacht der Wissenschaften in Berlin
Participation under the pseudonym *Iasafro Maesman* obtaining the 2nd place

Institution: University Library of the TU Berlin and UdK

Place: Berlin, Germany

Date: 06/06/2016

Reflejo de Palabras (Reflection of words)

at the **Exhibition *Reflejos. Proyecto experimental entre artistas y escritores.***

Creator: María Jesús Cueto Puente
Josué Tonelli-Cueto

Curator: Marina Gurruchaga
Rosario de Gorostegui

Institution: Biblioteca Central de Cantabria

Place: Santander, Spain

Date: 10/10/2014-04/11/2014

Curso H.1 ¿Qué hay que enseñar hoy en la escuela?

(*Course H.1 What should be taught in school today?*)

XXXIII Cursos de Verano de la UPV/EHU (XXXIII Summer Courses of the UPV/EHU)

Organizer: University of the Basque Country(UPV/EHU)

Directors: Paulí Dávila Balsera
Jaume Carbonell Sebarroja

Location: Donostia-San Sebastián, Spain

Dates: 25/06/2014-27/06/2014

Workshop 6.1 “Once upon a time...” Techniques for Storytelling in English

XXXIII Cursos de Verano de la UPV/EHU (XXXIII Summer Courses of the UPV/EHU)

Organizer: University of the Basque Country(UPV/EHU)

Director: Diana Lindsay

Location: Donostia-San Sebastián, Spain

Dates: 23/06/2014-24/06/2014

Curso “Cognición comparada entre chimpancés y humanos”

(“Compared cognition between chimpanzees and humans” Course)

Organizers: “Bionatur” Biology Students’ Association
Official Professional Association of Biologists of the Basque Country
Psychology Official Professional Association of Biscay
Faculty of Science and Technology of the UPV/EHU

Speaker: Miquel Llorente Espino

Location: Bilbao, Spain

Dates: 09/05/2014

Talentia Programme 2013-14 of Bizkaia Talent

Description: Activities and talks for career development of students

Organizer: Bizkaia Talent

Location: Province of Biscay, Spain

Dates: 01/2014-06/2014

II. Simposio UNIBASQ. La Calidad del Sistema Universitario Vasco: La Perspectiva de los Usuarios

(2nd UNIBASQ Symposium. The Quality of the Basque University System: The perspective of the User)

Organizing institution: Agency for Quality of the Basque University System (UNIBASQ)

Location: Bilbao, Spain

Dates: 16/10/2013

Poetry Recital at the opening of the exhibition *Proyecto Trait D’Union*

Curator: Matteo Acarrino
Carmela Claps
María Jesús Cueto Puente

Institution: Observatorio del Arte

Place: Arnauero, Spain

Date: 31/08/2012

Curso de Teoría de Grafos aplicando el método de Moore

(Graph Theory Course applying Moore's Method)

Organizer: Luis Martínez Fernández

Hosting Institution: Faculty of Science and Technology (ZTF-FCT)
of the University of the Basque Country (UPV/EHU)

Location: Leioa, Spain

Date: 09/2011-12/2011

Scientific Olympiads

Gold Medal in the XIV Olimpiada Iberoamericana de Física

(XIV Iberoamerican Physics Olympiad)

Hosting institution: Sociedad Chilena de Física

Date: 03/10/2009

Silver Medal and Special McGraw-Hill award to the best resolution of the theoretical part in the XX Olimpiada Española de Física

(XX Spanish Physics Olympiad)

Hosting institution: Public University of Navarra

Date: 27/04/2009

Bronze Medal in the XLV Olimpiada Matemática Española

(XLV Spanish Mathematical Olympiad)

Hosting institution: University of Girona (UdG)

Universitat Politècnica de Catalunya (UPC)

Date: 28/03/2009

LANGUAGES

Spanish	Native
English	C1
Euskera (Basque)	A2-B1
Deutsch (German)	A2
Français (French)	A2

The levels given follow the Common European Framework of Reference for Languages. In this framework, the levels are, from lowest to highest, A1, A2, B1, B2, C1 and C2. The B1 level indicates *Vantage Independent Use*, the C1 level *Effective Operational Proficiency* of the language and the C2 level *Mastery* of it.

REFERENCES

Peter Bürgisser	pburg@math.tu-berlin.de	Technische Universität Berlin
Felipe Cucker	macucker@cityu.edu.hk	CityU Hong Kong
Alperen Ali Ergür	alperen.ergur@utsa.edu	UT San Antonio
Marta Macho-Stadler	marta.macho@ehu.eus	University of the Basque Country
Elias Tsigaridas	elias.tsigaridas@inria.fr	Inria Paris & IMJ-PRG