

# CURRICULUM VITAE

of  
Josué TONELLI-CUETO

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## CONTACT INFORMATION

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## AREAS OF MATHEMATICAL INTEREST

Numerical algorithms      Condition-based complexity  
Computational algebraic geometry      Random geometry

## POSITIONS

### FSMP Postdoctoral Fellow

Institution: OURAGAN team at Inria Paris and IMJ-PRG  
Fondation Sciences Mathématiques de Paris (FSMP)

Mentors: Fabrice Rouillier  
Elias Tsigaridas

Location: Paris, France

Duration: 10/2020-09/2022

### Postdoctoral researcher

Institution: OURAGAN team at Inria Paris and IMJ-PRG

Mentors: Fabrice Rouillier  
Elias Tsigaridas

Location: Paris, France

Duration: 02/2020-09/2020

## 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

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

## **GRANTS AND AWARDS**

### **Research Scholarships**

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#### **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)

Tecnische 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

**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

## PUBLICATIONS

### Preprints

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- F. Cucker, A. A. Ergür, & J. Tonelli-Cueto. (2021, February). Functional norms, condition numbers and numerical algorithms in algebraic geometry. arXiv:2102.11727.
- F. Cucker, A. A. Ergür, & J. Tonelli-Cueto. (2020, April). On the Complexity of the Plantinga-Vegter Algorithm. Journal version of (Cucker, Ergür, & Tonelli-Cueto, 2019). arXiv:2004.06879.
- J. Tonelli-Cueto & E. Tsigaridas. (2020b, December). Condition Numbers for the Cube. I: Univariate Polynomials and Hypersurfaces. Journal version of (Tonelli-Cueto & Tsigaridas, 2020a). arXiv:2006.04423.

### Journal papers

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- P. Bürgisser, F. Cucker, & J. Tonelli-Cueto. (2021, January). Computing the Homology of Semialgebraic Sets. II: General formulas. *Foundations of Computational Mathematics*. 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

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- J. Tonelli-Cueto & E. Tsigaridas. (2020a, 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.

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

## TALKS AND OTHER PRESENTATIONS

### Conference presentations

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**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)

**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  
Together with F. Cucker and A. A. Ergür

**ISSAC 2020** (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

**ISSAC 2019** (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

**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

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Posters

**SIAM Conference on Applied Algebraic Geometry 2021 (2021) [On-line due to the COVID-19]**

Poster: Breaking the Curse of Infinite Average Run-Time in Numerical Real Algebraic Geometry,  
can the Adaptive Grid Method do the Job?

**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 Bienal 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

Other

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**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?

**ORGANIZED ACTIVITIES**

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

at **SIAM Conference on Applied Algebraic Geometry 2021**

Organizer: Josué Tonelli-Cueto

Cordian Riener

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 **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]**

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]**

Location: Güzelyurt, Northern Cyprus

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



**Minisymposium *Numerical methods for structured polynomial system solving* [Co-organizer]  
at 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 [Co-organizer]**

Location: Berlin, Germany

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

**TEACHING EXPERIENCE**

***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

**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

**“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 Elkartea

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

Date: 11/2012-05/2013



Projects and organized activities

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**Revista  $\pi$ kasle Aldizkaria**

(Mathematics Students' Magazine  $\pi$ 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

**$\pi$ kasle's Mathematics, Magic and Mystery Workshop**

Description: Workshop covering topics related to magic and mathematics

Organizing entity: Revista  $\pi$ 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

**$\pi$ kasle's Martin Gardner Celebration of Mind**

Description: Day of activities in commemoration of Martin Gardner

Organizing entity: Revista  $\pi$ 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

Articles

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J. Tonelli-Cueto. (2015, October). Emmy Noether, un retrato alfabético [Spanish] (Emmy Noether, an alphabetic portrait). *Blog "mujeres con ciencia"*. 2015-10-05.

**Tour Guide at the Astronomia 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/](http://www.ehu.es/astronomasbilbao/)

**Tour Guide 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/](http://www.ehu.es/imaginary/)

**SERVICE**

**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 Elkarte**

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

Labour: Secretary

Dates: 09/2012-05/2013

**ACTIVITIES**

**Research Stays**

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**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

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**Attended conferences****SIAM Conference on Applied Algebraic Geometry 2021**

Organizer: Hal Schenck and Josephine Yu (Conference Co-Chairs)  
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: Carlos DAndrea (Chair)

Timo de Wolff

Elisa Gorla

Gabriela Jeronimo

Kaie Kubjas

Anton Leykin

Fatemeh Mohammadi

Cordian Riener

Hosting Institution: UiT The Arctic University of Norway

Location: Tromsø, Norway (On-line)

Date: 17/06/2021-21/06/2021

## **Divulga NextGen - Congreso online**

*(Divulga NextGen - Online conference)*

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: Ioannis Z. Emiris and Lihong Zhi (General Chairs)

Location: Kalamatas, 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: Berlin, 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: James Davenport and Dongming Wang (General Chairs)

Hosting Institution: Beihang University

Location: Beijing, China

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

**SIAM Conference on Applied Algebraic Geometry 2019**

Organizer: Sandra Di Rocco and Caroline Uhler (Conference Co-Chairs)

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: Theobald Thorstein (Chair)  
Mariemi Alonso (Local Chair)  
Carlos D'Andrea  
Alessandra bernardi  
Frederic Bihan  
Sandra Di Rocco  
Mauricio Velasco  
Josephine Yu

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

### **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

### **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

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### **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 Balsara  
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

Scientific Olympiads

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**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

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**

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