# Josué Tonelli-Cueto

## Curriculum Vitae

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#### Areas of mathematical interest.

- Numerical algorithms
- Computational algebraic geometry
- Condition-based complexity
- Random geometry

### Positions

- Oct/2020 FSMP Postdoctoral Fellow, OURAGAN team, Inria Paris & IMJ-PRG, Paris, France.
- Sep/2022 Mentors: Fabrice Rouillier, Elias Tsigaridas
- Feb/2020 Postdoctoral researcher, OURAGAN team, Inria Paris & IMJ-PRG, Paris, France.
- Sep/2020 Mentors: Fabrice Rouillier, Elias Tsigaridas

#### Education

- Jan/2017 **Dr. rer. nat. Mathematik**, *Technische Universität Berlin*, Germany, *Summa Cum Laude*.
- Nov/2019 Thesis Condition and Homology of Semialgebraic Sets
  Supervised by Peter Bürgisser and Felipe Cucker in the framework of the Berlin Mathematical School
  With 3rd Prize in the Tiburtius Prizes 2020 of the Berlin Universities
- Oct/2014 M.Sc. Mathematik, Technische Universität Berlin, Germany, 1.0.
- Mar/2017 Thesis On the Complexity of some Null-Cone Membership Problems supervised by Peter Bürgisser In the framework of the Berlin Mathematical School
- Oct/2009 Licenciatura en matemáticas, University of the Basque Country, Spain, 9.86.
- Jul/2014 With Best Student Record and First Prize in the End of Studies Spanish National Awards

#### Grants & Awards

#### Research fellowships and scholarships

- Oct/2020 **FSMP Postdoctoral Fellowship**, 2020 Call, "Interactions" program.
- Sep/2022 Awarded by the Fondation Sciences Mathématiques de Paris
- Jan/2017 BMS Doctoral Fellowship.
- Dec/2019 Funded by the Einstein Foundation Berlin withing F. Cucker's Einstein Visiting Fellowship
- Oct/2014 Scholarship of "la Caixa" for graduate studies in Europe, 2014 Call.
- Jul/2017 Funded also by the German Academic Exchange Service (DAAD)
- Nov/2013 Collaboration Scholarship for the academic year 2013-2014.
- Jun/2014 Funded by the Basque Government
  Working with Gustavo Adolfo Fernández Alcober on *pro-p groups and p-adic analytic groups* at University of the Basque Country
- Jul/2013 Research Introduction Scholarship of the JAE Program.
- Sep/2013 Funded by the Consejo Superior de Investigaciones Científicas (CSIC)
  Working with Andrei Jaikin-Zapirain on Class Field Theory at Instituto de Ciencias Matemáticas (ICMAT)

  Awards
- Oct/2020 **3rd Prize in the Tiburtius Prizes 2020 of the Berlin Universities**, State Conference of Rectors and Presidents of Berlin Universities (LKRP).
- Jul/2019 SIAM Student Travel Award, SIAM Conference on Applied Algebraic Geometry 2019.
- Jun/2019 **Special Award to Young Researchers presenting Posters**, *MEGA2019*. One out of three awards

- Jul/2018 First Prize in the End of Studies Spanish National Awards, Spanish Government.
- Jun/2015 End of Degree Extraordinary Award of the Licenciatura en matemáticas, *University of the Basque Country*.
- Oct/2013 Honor Mention in the modality "Popular science work. Media", 14th Ciencia en Acción. Together with Ricardo Grande for the Mathematics Students' Magazine  $\pi kasle$
- 29/Nov/2012 III Awards to students who best spread the image of the University of the Basque Country. 1st prize in the category of science with Ricardo Grande for the Mathematics Students' Magazine  $\pi kasle$  1st prize in the category of social sciences and legal studies with my fellow teammates for winning the IV University Debate Legaue of the G9 Group
- Feb-Mar/2012 Winner in the IV University Debate Legaue of the G9 Group, Oviedo, Spain. As part of the team of the University of the Basque Country
  - Jun/2011 **Special Mention in the Contests of Works about Sophia Kovalevskaya**, *University of the Basque Country*.

For doing a calligram about Sophia Kovalevskaya

## **Publications**

#### **Preprints**

- [1] 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.
- [2] P. Bürgisser, F. Cucker, & J. Tonelli-Cueto. (2019, March). Computing the Homology of Semialgebraic Sets. II: General formulas. arXiv:1903.10710.

## Journal papers

- [3] 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-v. arXiv:1807.06435.
- [4] 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

- [5] 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:2006.04423.
- [6] 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

[7] 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

- Jul/2020 Condition Numbers for the Cube. I: Univariate Polynomials and Hypersurfaces, *ISSAC 2020*, Kalamata, Greece. (On-line talk due to the COVID-19 pandemic).
- Feb/2020 **Beyond Gaussians in the probabilistic analysis of condition numbers in algebraic geometry**, *Milestones Conference of the Thematic Einstein Semester on Algebraic Geometry*, Berlin, Germany.
- Jan/2020 Computing the homology of semialgebraic sets in weak single exponential time, *V Congreso de Jóvenes Investigadores la RSME*, Castelló, Spain.

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- Jan/2020 **Real zeros of random fewnomials**, *V Congreso de Jóvenes Investigadores la RSME*, Castelló, Spain.
- Oct/2019 **On zeros of random fewnomials (2 talks)**, Research Workshop on Random Real Algebraic Geometry, Güzelyurt, Northern Cyprus.
- Oct/2019 **What is the probabilistic analysis of a condition number?**, *Opening Conference of the Thematic Einstein Semester on Algebraic Geometry*, Berlin, Germany.
- Aug/2019 **Average minus Weak Complexity equals Adaptive algorithms**, *Complexity of numerical computation: A conference in honor of Felipe Cucker*, Berlin, Germany.
- Jul/2019 Plantinga-Vegter takes average polynomial time, ISSAC 2019, Beijing, China.
- Jul/2019 Farewell to Weyl: Condition-based analysis with a Banach norm in numerical algebraic geometry, SIAM Conference on Applied Algebraic Geometry 2019, Bern, Switzerland.
- Jun/2019 **Numerical Computation of Homology Groups of Closed Semialgebraic Sets**, Workshop MEGAR 2019: Effective Methods in Real Algebraic Geometry, Madrid, Spain.
- May/2019 How many zeros does a random fewnomial system have?, 2nd BYMAT Conference, Madrid, Spain.
- Feb/2019 **How many zeros does a random fewnomial system have?**, 7th BMS Student Conference, Berlin, Germany.
- Jan/2019 **On Zeros of Random Fewnomials (5 talks)**, Random Real Algebraic Geometry Workshop, Nesin Matematik Köyü, Turkey.
- May/2018 **Computing the Homology of Closed Semialgebraic Sets**, *1st BYMAT Conference*, Madrid, Spain.
- Feb/2018 **The Niyogi-Smale-Weinberger Approximation Theorem**, 6th BMS Student Conference, Berlin, Germany.
- Nov/2017 **Computing the Homology of General Semialgebraic Sets**, *Workshop "Algebra meets Numerics: Condition and Compleity"*, Berlin, Germany.
- Jul/2017 Random real Schubert Calculus and lines on surfaces, Workshop "Reading Group on Real Algebraic Geometry", Leipzig, Germany.
- Feb/2017 The shadow of the hidden combinatorics of completely positive operators on Polynomial Identity Testing, 5th BMS Student Conference, Berlin, Germany.

#### Invited seminar talks

- 02/May/2019 Computing the Homology of Semialgebraic Sets in Weak Exponential Time, Algebra Seminar of the "Groups, Topology and Applications" Research Group, U. of the Basque Country.
- 11/Apr/2019 Condition meets Computational geometry: The Plantinga-Vegter algorithm case, Colloquium of the Graduiertekolleg "Facets of Complexity" (GRK 2434), Freie Universität Berlin.
- 16/Jan/2018 **Computing the Homology of Semialgebraic Sets**, *Oberseminar des Institut für Algebra und Geometrie*, Otto von Guericke Universität Magdeburg.
- 09/Jan/2017 **Sobre la complejidad de algunos problemas de pertenencia al cono nulo**, *Seminario del Departamento de Matemáticas*, University of the Basque Country. [In Spanish].

#### **Posters**

- Jun/2019 Computing the Homology Groups of Closed Semialgebraic Sets in Weak Exponential Time,
   MEGA 2019: Effective Methods in Algebraic Geometry, Madrid, Spain.
   Awarded one of the three Special Awards to Young Researchers presenting Posters
- Feb/2019 **Computing the Homology Groups of Semialgebraic Sets**, 2nd Graduate meeting on Applied Algebra and Combinatorics, Leipzig, Germany.
- Feb/2019 Computing the Homology Groups of Semialgebraic Sets in Weak Exponential Time, Congreso Bienal de la Real Sociedad Matemática Española 2019, Santander, Spain.

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- Aug/2018 Computing the Homology Groups of Semialgebraic Sets, Summer School on Numerical Computing in Algebraic Geometry, Leipzig, Germany.
- Jun/2018 **Polynomial Identity Testing and the Combinatorics of Completely Positive Operators**, *Qmath Masterclass on "Tensors: Geometry and Quantum Information"*, Copenhagen, Denmark.
- Jun/2018 **Computing the "Shape" of Semialgebraic Sets**, Symposium "Bridging European Science II", Berlin, Germany.

#### Others

- 07/Dec/2018 What is the best voting system?, "What is...?" Seminar, Berlin Mathematical School.
- 29/Jun/2018 What are semialgebraic sets in context?, "What is...?" Seminar, Berlin Mathematical School.
- 30/Jun/2017 What are BPP, RP and the other probabilistic complexity classes?, "What is...?" Seminar, Berlin Mathematical School.
- 27/Jan/2017 What is the length of a potato?, "What is...?" Seminar, Berlin Mathematical School.
- 05/Feb/2016 What is an Origami Constructible Number?, "What is...?" Seminar, Berlin Mathematical School.

## Organized activities

- 19-24/Jul/2021 **Special Session** *Symbolic and Numerical Computation with Polynomials*, *Mathematical Congress of the Americas 2021*.

  Co-organizer with Diego Armentano, Matías Bender and Alperen A. Ergür
  - 1-3/Dec/2020 **3rd BYMAT Conference**, *Universitat de València & Universitat Politècnica de València*, (On-line). Memeber of the Scientific Committee together with A. Hinojosa-Calleja (Coordinator), M. de León-Contreras, C. Parreño-Torres, T. Sanz-Perela, A.V. Ponce-Bobadilla, E. Sarrión-Pedralva and J.C. Cortés
    - May/2016 "What is...?" Seminar, Berlin Mathematical School.
    - Dec/2019 Student organized seminar where a new concept, idea or object is introduced each week Co-organizer, web-design and video management
- 21-26/Oct/2019 Research Workshop on Random Real Algebraic Geometry, *Güzelyurt*, Northern Cyprus. Co-organizer with Alp Bassa, Turgay Bayraktar, Özgür Kiisel and Ferit Öztürk
  - 9-12/Jul/2019 Minisymposium Numerical methods for structured polynomial system solving, SIAM Conference on Applied Algebraic Geometry 2019.

    Co-organizer with Alperen A. Ergür, Pierre Lairez and Gregorio Malajovich
- 21-23/Feb/2018 **6th BMS Student Conference**, *Berlin Mathematical School*.

  Co-organizer with Héctor Andrade Loarca, Qiao Luo, Brent Moran and Yuya Tokuta

## Teaching experience

- Apr/2018 Effective Algebraic Geometry Seminar, Technische Universität Berlin, Berlin, Germany.
- Jul/2018 Organized together with Peter Bürgisser and Alperen Ali Ergür
- Oct/2013 Private Remedial Teacher, Centro de Estudios INTEC, Bilbao, Spain.
- May/2014 Linear algebra to math undergraduates and mathematics to non-math undergraduates Approx. 156 hours of teaching
- 11-14/Feb/2014 "'Groups of units in complete discrete valuation rings" Course, University of the Basque Country, Leioa, Spain.
  4 hours of teaching
  - Nov/2012 "P vs. NP and related topics" Seminar, University of the Basque Country, Leioa, Spain.
  - May/2015 Organized together with Luis Martínez 30 hours of teaching

## Communication/Popularization of Mathematics and Science

#### Projects and organized activities

- Sep/2011 Revista  $\pi$ kasle Aldizkaria, Mathematics Students' Magazine.
- Jul/2014 ISSN: 2174-9027 (digital) and 2255-5714 (printed)

Founder, together with Ricardo Grande

Member of the Editorial Committee. Cover designer and desktop publisher. Social media manager.

- 09&30/May/2014  $\pi kasle$ 's Mathematics, Magic and Mystery Workshop, U. of the Basque Country, Leioa, Spain. Co-organizer, together with Ricardo Grande
  - 23/Oct/2013  $\pi kasle$ 's Martin Gardner Celebration of Mind, U. of the Basque Country, Leioa, Spain. Organizer

#### **Articles**

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

#### Other

- 06/Oct/2011 Astronomia Emakunde/Con 'A' de Astrónomas Exhibition, U. Basque Country, Bilbao, Spain.
- 11/Nov/2011 Tour guide
- 05-26/May/2011 **RSME-IMAGINARY BILBAO Exhibition**, *U. of the Basque Country*, Bilbao, Spain. Tour guide

#### Service work

- Apr/2015 Student Vocal at the Committee of Evaluation of Degrees in the Area of Science, Agency
- Mar/2018 for Quality of the Basque University System (UNIBASQ), Vitoria, Spain.
- Jan-Dec/2017 BMS Student Representative, Berlin Mathematical School, Berlin, Germany.
  - Sep/2012 **Secretary**, Mathematics Students' Association Epsilon-Delta, Leioa, Spain.
  - May/2013 Association of mathematics students of the University of the Basque Country

#### Activities

#### Research stays and visits

- Jan/2020 **Research visit to Elias Tsigaridas**, *Paris*, France. (19-25/Jan).
- Dec/2019 Research visit to Elias Tsigaridas, Paris, France. (8-12/Dec).
- May/2019 Research visit to Elias Tsigaridas, Paris, France. (12-17/May).
- Mar-Apr/2019 Research stay with Felipe Cucker, Hong Kong, China. (15/Mar-01/Apr).
- Oct-Nov/2018 Research visit to Nicolai Vorobjov, Bath, England. (27/Oct-03/Nov).
  - Oct/2018 Research stay with Felipe Cucker, Tuleries d'Affiac, France. (01-15/Oct).
  - Apr/2018 Research stay with Felipe Cucker, Hong Kong, China. (10-28/Apr).
- Nov-Dec/2017 Research stay with Felipe Cucker, Hong Kong, China. (21/Nov-08/Dec).
  - Jan/2017 **Research stay with Felipe Cucker**, *Hong Kong*, China. (13-26/Jan).

#### Attended conferences

- 19-24/Jul/2021 Mathematical Congress of the Americas 2021, Buenos Aires, Argentina. (On-line).
- 1-3/Dec/2020 **3rd BYMAT Conference**, *Universitat de València & Universitat Politècnica de València*, (On-line).
- 14-25/Sep/2020 **CO@Work 2020**, Technische Universität Berlin & Zuse Institut Berlin, (On-line).
- 20-23/Jul/2020 ISSAC 2020, Kalamata, Greece. (On-line).
- 27-28/Feb/2020 Milestones Conference of the Thematic Einstein Semester on Algebraic Geometry, Zuse Institut Berlin.
- 27-31/Jan/2020 V Congreso de Jóvenes Investigadores de la RSME, Universitat Jaume I.
- 21-26/Oct/2019 Research Workshop on Random Real Algebraic Geometry, Güzelyurt, Northern Cyprus.

- 07-11/Oct/2019 Opening Conference of the Thematic Einstein Semester on Algebraic Geometry, Freie Universität Berlin.
- 19-23/Aug/2019 **Complexity of numerical computation: A conference in honor of Felipe Cucker**, Berlin-Brandenburgische Akademie der Wissenschaften.
- 15-18/Jul/2019 **ISSAC 2019**, *Beihang University*.
- 09-13/Jul/2019 SIAM Conference on Applied Algebraic Geometry 2019, Universität Bern.
- 21-22/Jun/2019 Workshop MEGAR 2019: Effective Methods in Real Algebraic Geometry, Universidad Complutense de Madrid.
- 17-21/Jun/2019 MEGA 2019: Effective Methods in Algebraic Geometry, Universidad Complutense de Madrid.
- 03-05/Jun/2019 Noether Konferenz 2019: Wie kommt das Neue in die Welt?, Berlin, Germany.
- 20-24/May/2019 2nd BYMAT Conference, Instituto de Ciencias Matemáticas (ICMAT).
- 20-22/Feb/2019 7th BMS Student Conference, Berlin Mathematical School.
- 18-20/Feb/2019 **2nd Graduate Meeting on Applied Algebra and Combinatorics**, *Max-Planck-Institut für Mathematik in der Naturwissenschaften (Leipzig)*.
- 04-08/Feb/2019 Congreso Bienal de la Real Sociedad Matemática Española 2019, Universidad de Cantabria.
- 21-27/Jan/2019 Random Real Algebraic Geometry Workshop, Nesin Matematik Köyü.
- 23-28/Sep/2018 6th Heidelberg Laureate Forum, Heidelberg.
- 13-17/Aug/2018 **Summer School on Numerical Computing in Algebraic Geometry**, *Max-Planck-Institut für Mathematik in der Naturwissenschaften (Leipzig)*.
- 18-22/Jun/2018 QMath Masterclass on "Tensors: Geometry and Quantum Information", University of Copenhagen.
- 04-08/Jun/2018 Workshop "Optimization, Complexity and Invariant Theory", Institute for Advance Studies (IAS).
  - 02/Jun/2018 Symposium "Bridging European Science II", Berlin, Germany.
- 07-09/May/2018 1st BYMAT Conference, Instituto de Ciencias Matemáticas (ICMAT).
- 21-23/Feb/2018 **6th BMS Student Conference**, *Berlin Mathematical School*.

  Co-organizer with Héctor Andrade Loarca, Qiao Luo, Brent Moran and Yuya Tokuta
- 06-07/Nov/2017 Workshop "Algebra meets Numerics: Condition and Complexity", Technische Universität Berlin.
- 13-19/Jul/2017 FoCM 2017 Conference (Blocks B and C), Universitat de Barcelona.
- 03-07/Jul/2017 Workshop "Reading Group on Real Algebraic Geometry", Max-Planck-Institut für Mathematik in der Naturwissenschaften (Leipzig).
  - 10/Jun/2017 Workshop "Polynomial and Polytopes", Technische Universität Berlin.
- 22-24/May/2017 **Chow Lectures 2017**, Max-Planck-Institut für Mathematik in der Naturwissenschaften (Leipzig).
- 13-17/Mar/2017 BCAM Course "Quantum Information Theory", Basque Center for Applied Mathematics.
- 22-24/Feb/2017 **5th BMS Student Conference**, Berlin Mathematical School.
- 12-14/Dec/2016 Workshop "Tensors: Algebra meets Numerics", Max-Planck-Institut für Mathematik in der Naturwissenschaften (Leipzig).
- 18-22/Jul/2016 7th European Congress of Mathematics, Teschnische Universität Berlin.
- 17-19/Feb/2016 4th BMS Student Conference, Berlin Mathematical School.
  - 26/Jul/2015 **Hilbert Bernays Summer School on Logic and Computation**, *Geor-August-Universität* 01/Aug/2015 *Göttingen*.
- 13-17/Jul/2015 **2015 Santaló Summer School on "Number theory and arithmetic geometry"**, *Universidad Internacional Menéndez Pelayo*.
  - 29/Jun/2015 BMS Summer School 2015 on "Convex Geometry discrete and computational", Berlin 10/Jul/2015 Mathematical School.

- 02-06/Mar/2015 Homological Algebra Workshop, Instituto de Ciencias Matemáticas (ICMAT).
- 18-20/Feb/2015 **3rd BMS Student Conference**, Berlin Mathematical School.
- 07-11/Jul/2014 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, *Madrid*, Spain.

Attended as student volunteer

- 30/Jun/2014 First International Meeting of the Italian and Spanish Mathematical Societies, University of
- 04/Jul/2014 the Basque Country.

Attended as student volunteer

- 19-21/Feb/2014 **2nd BMS Student Conference**, Berlin Mathematical School.
- 01-26/Jun/2013 VI Edición de la Escuela JAE de Matemáticas, Instituto de Ciencias Matemáticas (ICMAT).
- 23-29/Jul/2012 XIII Encuentro Nacional de Estudiantes de Matemáticas, Murcia, Spain.
- 01-21/Jul/2012 **2012 PCMI Summer Session "Geometric Group Theory"**, *IAS/Park City Mathematic Institute*.
- Sep-Dec/2011 Curso de Teoria de Grafos aplicando el método de Moore, University of the Basque Country.
- 03-23/Jul/2011 **2011 PCMI Summer Session "Moduli Spaces of Riemann Surfaces"**, *IAS/Park City Mathematic Institute*.
  - 24/Jun/2011 Coloquio RSME 2011: Las dos ideas de Sofía Kovalevskaya, University of the Basque Country.
- $01\text{-}03/\text{Jun}/2011 \quad \textbf{Jornadas RSME 2011: Los Problemas del Milenio}, \ \textit{Universitat de Barcelonar}.$

Other

- 28/Nov/2020 Jornada y Asamblea Anual 2020 de la Sociedad de Investigadores Españoles en Francia, France (On-line).
- 18-20/Sep/2017 Science+ 2017, ERA Career Day Bilbao, University of the Basque Country, Bilbao, Spain.
  - 06/Jun/2016 **Slam the library #2 Poetry Slam**, *University Library of the TU Berlin and UdK*, Berlin, Germany. Participant under pseudonym *lasafro Maesman* ending at 2nd place
- 10-04/Nov/2014 **Exhibition Reflejos. Proyecto experimental entre artistas y poestas**, Biblioteca Central de Cantabria, Santander, Spain.

Participation with Reflejo de Palabras (Reflection of words) together with María Jesús Cueto Puente

- 25-27/Jun/2014 Curso H.1 ¿Qué hay que enseñar hoy en la escuela?, XXXIII Summer Courses of the University of the Basque Country, Donostia, Spain.
- 23-24/Jun/2014 Workshop 6.1 "Once upon a time..." Techniques for Storytelling in English, XXXIII Summer Courses of the University of the Basque Country, Donostia, Spain.
  - 09/May/2014 Curso "Cognición comprada entre chimpancés y humanos", Bilbao, Spain.
  - Jan-Jun/2014 Talentia Programme 2013-2014 of Bizkaia Talent, Province of Biscay, Spain.
  - 16/Oct/2013 II. Simposio UNIBASQ. La Calidad del Sistema Universitario Vasco: La Perspectiva de los Usuarios, Bilbao, Spain.
  - 31/Aug/2012 **Poetry Recital at the opening of the exhibition** *Proyecto Trait D'Union*, *Observatorio del Arte*, Arnuero, Spain.

Scientific Olympiads

- Oct/2009 Gold Medal in the XIV Iberoamerican Olympiad of Physics, Santiago de Chile, Chile.
- Apr/2009 Silver Medal and Special McGraw-Hill Prize to the best resolution of the theoretical part in the XX Spanish Mathematical Olympiad, Pamplona, Spain.
- Mar/2009 Bronze Medal in the XLV Spanish Mathematical Olympiad, Sant Feliu de Guíxols, Spain.

Languages

Spanish Native

English C1

Basque A2-B1

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#### German A2

## References

- Peter Bürgisser, pbuerg@math.tu-berlin.de, Technische Universität Berlin.
- o Felipe Cucker, macucker@cityu.edu.hk, CityU Hong Kong.
- o Alperen Ali Ergür, aergur@cs.cmu.edu, Carnegie Mellon University.
- o Marta Macho-Stadler, marta.macho@ehu.eus, University of the Basque Country.
- o Elias Tsigaridas, elias.tsigaridas@inria.fr, Inria Paris & IMJ-PRG.