

Giancarlo Urzúa

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Nationality: Chilean.

Education

2003-2008: Ph.D. in Mathematics, University of Michigan, Ann Arbor, USA.
Dissertation: “Arrangements of curves and algebraic surfaces”.
Advisor: Igor Dolgachev.

2001-2003: M.S. in Mathematics (Magister en Matemática), UC Chile.
Dissertation: “Una generalización de las superficies de Lefschetz”.
Advisor: Rubí E. Rodríguez.

1997-2000: B.S. in Mathematics (Licenciatura en Matemática), UC Chile.

1993-1996: High School, Instituto Nacional, Santiago, Chile.

1992: Escuela E-10, Cadete Arturo Prat Chacón, Santiago, Chile.

1984-1992: Escuela D-4, República de Israel, Arica, Chile.

Positions Held

2015-present: Associate Professor, Department of Mathematics, UC Chile.

2011-2015: Assistant Professor, Department of Mathematics, UC Chile.

2008-2011: Visiting Assistant Professor, Department of Mathematics, University of Massachusetts at Amherst, USA.

Research Interest: Algebraic Geometry.

Publications and Preprints

35. “The birational geometry of Markov numbers” (joint with Juan Pablo Zúñiga), October 2023, submitted.

34. “Optimal bounds for many T-singularities in stable surfaces” (joint with Fernando Figueroa, Julie Rana), arXiv:2308.05624, August 2023, submitted.

33. “Exotic surfaces” (joint with Javier Reyes), arXiv:2211.13163, November 2022, submitted.
32. “Categorical aspects of the Kollár—Shepherd-Barron correspondence” (joint with Jenia Tevelev), arXiv:2204.13225, April 2022, submitted.
31. “Some open questions about line arrangements in the projective plane”, *Proyecciones Journal of Mathematics* Vol. 41, N. 2, pp. 517-536, April 2022.
30. “The Coble-Mukai lattice from \mathbb{Q} -Gorenstein deformations”, pp.14, submitted to the proceedings of “Moduli and Hodge theory” online conference at IMSA, 2021, arXiv:2308.05625.
29. “Rational configurations in K3 surfaces and simply-connected $p_g=1$ surfaces with $K^2=1,2,3,4,5,6,7,8,9$ ” (joint with Javier Reyes), *Math. Z.* 302 (2022), no.4, 2435-2467.
28. “On wormholes in the moduli space of surfaces” (joint with Nicolás Vilches), *Algebr. Geom.* 9(2022), no.1, 39-68.
27. “Chilean configuration of conics, lines and points” (joint with Igor Dolgachev, Antonio Laface, Ulf Persson), *Annali della Scuola Normale Superiore di Pisa Cl. Sci. (5)* Vol.XXIII (2022), 877-914.
26. “On degenerations of $\mathbb{Z}/2$ -Godeaux surfaces” (joint with Eduardo Dias, Carlos Rito), *Rev. Mat. Iberoam.* 38 (2022), no. 5, 1399-1423.
25. “Bounding tangencies of sections on elliptic surfaces” (joint with Douglas Ulmer), *Int. Math. Res. Not.* (2021), no. 6, 4768-4802.
24. “Savage surfaces” (joint with Sergio Troncoso), *J. Eur. Math. Soc. (JEMS)* 25 (2023), no.10, 4205-4219.
23. “Rigid surfaces arbitrarily close to the Bogomolov-Miyaoka-Yau line” (joint with Matthew Stover), *Amer. J. Math.* 144 (2022), no. 6, 1783-1804.
22. “Transversality of sections on elliptic surfaces with applications to elliptic divisibility sequences and geography of surfaces” (joint with Douglas Ulmer), *Selecta Math. (N.S.)* 28 (2022), no.2, Paper No. 25, 36pp.
21. “Simple embeddings of rational homology balls and antflips” (joint with Heesang Park and Dongsoo Shin), *Algebraic & Geometric Topology* 21 (2021), no.4, 1857-1880.
20. “Antiflips, mutations, and unbounded symplectic embeddings of rational homology balls” (joint with Jonny D. Evans), *Ann. Inst. Fourier (Grenoble)* 71 (2021), no.5, 1807-1843.

19. “On the geography of line arrangements” (joint with Sebastián Eterovic and Fernando Figueroa), *Adv. Geom.* 22(2022), no.2, 269-276.
18. “Families of explicit quasi-hyperbolic and hyperbolic surfaces” (joint with Natalia Garcia-Fritz), *Math. Z.* 296 (2020), 573-593.
17. “Optimal bounds for T-singularities in stable surfaces” (joint with Julie Rana), *Adv. Math.* 345 (2019), 814-844.
16. “Characterization of Kollár surfaces” (joint with José Ignacio Yáñez), *Algebra & Number Theory* 12 (2018), No.5, 1073-1105.
15. “On $Z/3$ -Godeaux surfaces” (joint with S. Coughlan), *International Mathematics Research Notices* (2018), issue 18, 5609-5637.
14. “Chern slopes of surfaces of general type in positive characteristic” (with an appendix by Rodrigo Codorniu), *Duke Math. J.* 166 (2017), 5, 975-1004.
13. “Milnor fibers and symplectic fillings of quotient surface singularities” (joint with Heesang Park, Jongil Park and Dongsoo Shin), *Adv. Math.* 329 (2018), 1156-1230.
12. “The Craighero-Gattazzo surface is simply-connected” (joint with Julie Rana and Jenia Tevelev), *Compositio Math.* 153(2017), 557–585.
11. “KSBA surfaces with elliptic quotient singularities, $\pi_1=1$, $p_g=0$, and $K^2=1,2$ ” (joint with Arié Stern) *Israel J. Math.* 214 (2016), 651–673.
10. “Chern slopes of simply connected complex surfaces of general type are dense in $[2,3]$ ” (joint with Xavier Roulleau), *Ann. of Math.* (2) 182 (2015), 287-306.
9. “ Q -Gorenstein smoothings of surfaces and degenerations of curves”, *Rend. Semin. Mat. Univ. Padova* 136 (2016), 111-136.
8. “Identifying neighbors of stable surface”, *Annali della Scuola Normale Superiore di Pisa* vol. XVI, 4 (2016), 1093-1122.
7. “Flipping surfaces” (joint with Paul Hacking and Jenia Tevelev), *J. Algebraic Geom.* 26(2017), 279-345.
6. “A simply connected numerical Campedelli surface with an involution” (joint with Heesang Park and Dongsoo Shin) *Math. Ann.* 357 (2013), no1, 31-49.
5. “Arrangements of rational sections over curves and the varieties they define”, *Rendiconti Lincei: Matematica e Applicazioni* 22 (2011), 453-486.
4. “Spin symplectic 4-manifolds near Bogomolov-Miyaoka-Yau line” (joint with Anar Akhmedov, B. Doug Park), *Journal of Gokova Geometry Topology* (2010), v.4, 55-66.

3. “*Arrangements of curves and algebraic surfaces*”, J. Algebraic Geom. 19(2010), 243-284.
2. “*On line arrangements with applications to 3-nets*”, Adv. Geom. 10(2010), issue 2, 287-310.
1. “*Riemann surfaces of genus g with an automorphism of order p prime and $p > g$* ”, Manuscripta Math. 121(2006), 169-189.

Students

Arié Stern, graduated on July 12th, 2013, UC Chile. Master thesis title: “*Nuevas singularidades en superficies estables simplemente conexas con $P_g=0$* ”. PhD at the University of Massachusetts Amherst, USA, 2021.

Rodrigo Codorniu, graduated on June 16th, 2014, UC Chile. Master thesis title: “*Superficies fibradas étale simplemente conexas*”. PhD at Université de Nice, France, 2021.

José Ignacio Yáñez, November 27th, 2014, UC Chile. Undergraduate thesis title: “*Caracterización de singularidades de du Val*”.

Sebastián Eterovic, graduated on June 17th, 2015, UC Chile. Master thesis title: “*Logarithmic Chern slopes of arrangements of rational sections in Hirzebruch surfaces*”. PhD at University of Oxford, UK, 2019.

José Ignacio Yáñez, graduated June 12th, 2017, UC Chile. Master thesis title: “*Characterization of Kollár Surfaces*”. PhD at University of Utah, USA, 2023.

Fernando Figueroa, December 6th, 2017, UC Chile. Undergraduate thesis title: “*La pendiente de Chern para arreglos de rectas*”.

Fernando Figueroa, July 11th, 2019, UC Chile. Master Thesis title: “*Optimal bounds for many T-singularities in stable surfaces*”. Currently in the PhD program at Princeton University, USA.

Sergio Troncoso, June 21st, 2020. Ph.D. Thesis title: “*On The Geography of Surfaces of General Type With Fixed Fundamental Group*”. Currently postdoc at UTFSM, Valparaiso, Chile.

Nicolás Vilches, July 6th, 2020. UC Master Thesis title: “*P-Resoluciones Extremales y Agujeros de Gusano en Espacios de Moduli de Superficies*”. Currently in the PhD program at Columbia University, USA.

Matías Modinger, December 17th, 2020, UC Chile. Undergraduate thesis title: “*¿Cuándo podemos parametrizar curvas algebraicas?*”.

Diana Torres, July 15th, 2021. UC Ph.D. Thesis title:
“On accumulation points of volumes of stable surfaces with one cyclic quotient singularity”.

Jaime Negrete, December 20th, 2021. UC undergraduate thesis title:
“Rectas en superficies de P^3 ”.

Vicente Monreal, December 20th, 2021. UC undergraduate thesis title:
“Singularidades en superficies de P^3 ”.

Javier Reyes, July 8th, 2022. UC Master’s thesis title:
“On finding surfaces via Q-Gorenstein deformations and its automatization”.
Currently in the PhD program at University of Maryland, USA.

Francisco Gallardo, November 11th, 2022. UC undergraduate thesis title:
“Derived categories of varieties and decompositions”.

Yerko Torres, August 9th, 2023. UC Ph.D. Thesis title:
“On the geography of 3-folds via asymptotic behavior of invariants”.

Jaime Negrete, Master student UC.

Vicente Monreal, Master student UC.

Juan Pablo Zúñiga, Ph.D. student UC.

Marcos Canedo, Ph.D. student UC.

Postdocs

Roberto Villaflor, postdoc ANID (2021-2023)
Ph.D. in Mathematics, IMPA, Brazil 2019

Fellowships, Grants and Awards

Marie Sklodowska-Curie FRIAS fellow 2023-2024

FONDECYT REGULAR 1230065 (March 2023-March 2027)

FONDECYT REGULAR 1190066 (March 2019-March 2023)

FONDECYT REGULAR 1150068 (March 2015-March 2019)

FONDECYT INICIACIÓN 11110047 (Oct 2011-Oct 2014)

Guest at Max Planck Institute for Mathematics (May 30 – August 8, 2010)

Rackham one term dissertation Fellowship, University of Michigan (Fall 2006)

Rackham one year tuition Fellowship, University of Michigan (Fall 2003-Winter 2004)

Fulbright-CONICYT Fellowship (2003-2007)

CONICYT Master's Fellowship

Padre Hurtado Award (Beca Padre Hurtado, PUC) (1997-2001)

Mathematical Service

Member of Comisión Asesora del Decano, UC Chile (November 2023-now).

Member of the national evaluation committee of Mathematics (Grupo de estudio de Matemáticas) for FONDECYT grants, May 2018- December 2021.

National coordinator of ANID (exCONICYT) for scholarships in Mathematics (becas ANID), 2018-present.

Panelist and reviewer for the process of selection of Fulbright-CONICYT PhD scholarships, Chilean Fulbright Commission, December 2013, December 2015, July 2020.

Counselor of the Facultad de Matemáticas UC Chile, 2017- October 2021.

Hiring Committee, UC Chile, September 2016-February 2017.

Member of the undergraduate program committee, UC Chile, 2016-2021.

Counselor of the Departamento de Matemáticas UC Chile, 2013-2016.

Organizer of the Coloquio General de Matemáticas, UC Chile, 2013-present.

Member of the Algebra qualifying exam, UC Chile, 2011-2021.

Member of the scientific committee for the BCM meeting of singularities (Colchagua, 2019), the CIMPA school ELGA (Talca, 2019), and the joint Argentina-Chile meeting SUMA (Mendoza, 2019).

Main local Organizer of the CIMPA-ICTP research school "Toric methods in geometry, arithmetics, and dynamics", January 11-22, 2016, Santiago, PUC.

Tutor for TIM (Taller de investigación Matemática) which is an introduction for high school students to research in Mathematics, August-December 2017.

Reviewer for Master and PhD CONICYT scholarships, CONICYT grants and BECAS Chile for the period 2014-2017.

Reviewer and referee for the AMS, zbMATH Open, and several Mathematical journals. Editor at the *Proyecciones Journal of Mathematics*, Antofagasta, Chile 2022-present.

Member of the PhD thesis committee of Robert Auffarth (UC Chile, 2014), Claudia Correa Deisler (U de Conce, 2020), Lilia Montserrat Vite Escobedo (UNAM Oaxaca, 2023).

Member of the Master thesis committee of Sebastián Herrero (UC Chile, 2012), Sebastián Cea (UC Chile, 2017), Gastón Burrul (UC Chile, 2018), Pablo Quezada (U de Chile, 2019).

Some Invited Talks/Mini-courses

“”, semi plenary, MCA 21-25 July 2025, Miami, USA.

“”, Conference in honor of Yongnam Lee's 60th birthday, Gangneung, South Korea.

“”, semi plenary, VII CLAM 26-30 August 2024, Joao Pessoa, Brasil.

“”, Mini-course, V ELGA, 12-23 August 2024, Cabo Frio, Brasil.

“Superficies algebraicas singulares y 4-variedades diferenciables exóticas”, mini-curso, Universidad del Valle, 5-6 Febrero, 2024, Cali, Colombia.

“The birational geometry of Markov numbers”, Algebraic Geometry Seminar, 28-30 November 2023, Berlin, Germany.

“Some geometry from continued fractions”, FRIAS Colloquium, 27 November 2023, Freiburg, Germany.

“Birational geometry of degenerations of surfaces”, Seminar Algebraic Geometry, 20-22 November 2023, BCAM, Bilbao, Spain.

“Categorical aspects of the KSB correspondence I”, Derived workshop, 6-10 November 2023, HIM, Bonn, Germany.

“Boundedness for T-singularities in KSBA surfaces and the Horikawa's problem”, Algebraic Geometry Seminar, 31 October 2023, Pavia, Italy.

“On the diffeomorphism problem of Horikawa surfaces”, Algebraic Geometry Seminar, 27-28 October 2023, Bayreuth, Germany.

“On one of the ends of MMP: Markovian planes”, Algebraic Geometry Seminar, 20 October 2023, Freiburg, Germany.

“The birational geometry of Markov numbers”, Algebraic Geometry Seminar, 12 October 2023, Hannover, Germany.

“Cotas óptimas para un número arbitrario de T-singularidades en superficies KSBA estables”, Santiago Number Theory and Algebra, SaNTAS, 4 Septiembre 2023.

“Optimal bounds for many T-singularities in stable surfaces”, 6th Brazil-Chile-Mexico Meeting on Singularities, 28-31 de Agosto de 2023, BIRS-CMO, Oaxaca, México.

“Sobre el plano proyectivo Markoviano”, dos charlas, 24-25 de Agosto de 2023, Instituto de Matemática UNAM, Oaxaca, México.

“”, June, 2023, Lancaster University, UK.

“110 years of the uniqueness conjecture of Markov”, Science Hall Colloquium, Lawrence University, May 2nd, 2023, Appleton, Wisconsin, USA.

“La ecuación de Markov y el plano proyectivo”, charla plenaria, XXXV Jornada de Matemática de la Zona Sur JMZS, 19 de Abril de 2023, Concepción, Chile.

“Exotic 4-manifolds and KSBA surfaces”, workshop on Interactions between symplectic and holomorphic convexity in 4 dimensions, April 10th, 2023, Banff, Canada.

“N-resolutions”, workshop on algebraic surfaces and related topics, IBS Center for Complex Geometry CCG, Feb 27th-28th, 2023, Daejeon, Corea del Sur.

Three lectures: “Categorical aspects of the Kollár—Shepherd-Barron correspondence”, one day workshop at Konkuk University, Feb 21st, 2023, Seúl, Corea del Sur.

Two lectures: “On the challenge of finding small exotic 4-manifolds”, CMC at KIAS, Feb 20th 2023, Seúl, Corea del Sur.

Mini-curso “Fracciones continuas en geometría algebraica”, IMCA, 5-6 Dic 2022, Lima, Perú.

Workshop “complex and symplectic curve configurations”, 12-16 Dic 2022, Nantes, France.

“N-resolutions”, Workshop Geometry at the Frontier 3 1/2, Universidad de la Frontera, November 30th to December 2nd, 2022, Pucón.

“Uróboros”, Coloquio de Matemática, Universidad de Chile, October 26th, 2022, Santiago.

“Geografía Rígida”, Coloquio de Matemática, Universidad de Concepción, September 29, 2022, Concepción (online).

“Geometrical aspects of singular surfaces and their smoothings” Algebraic Geometry Seminar, University of Freiburg, July 1st, 2022, Freiburg, Germany.

“Rational configurations in K3 surfaces and simply-connected $p_g=1$ surfaces for $K^2=1,2,3,4,5,6,7,8,9$ ” two sessions in the Algebraic Geometry Seminar UFF, February 23rd, 2022, Brazil.

“What is the right combinatorics for spheres in K3 surfaces?”, Geometry in Lisbon Seminar, online January 25th, 2022, Portugal.

“Buscando la combinatoria correcta en configuraciones de (-2)-curvas en superficies K3”, Sesión de Geometría, LXXXIX Encuentro Anual de la SOMACHI, Universidad de O’Higgins, Rancagua, 15-17 Diciembre, 2021.

“Una panorámica sobre variedades y su clasificación en geometría algebraica”, Instituto de Alta Investigación (IAI), Universidad de Tarapacá, Arica, December 6th, 2021.

“Wormholes: MMP, topology, continued fractions”, Center of Complex Geometry (CCG) at IBS Daejeon, online, South Korea, November 16th, 2021.

“About a mysterious continued fraction”, University of California Riverside Algebraic Geometry Seminar, online, USA, October 26th, 2021.

“Geometría Tórica”, Escuela doctoral UC Chile, online, October 4-5-6-7, 2021.

“Open problems in geography of surfaces”, Special session algebraic geometry, Mathematical Congress of the Americas, online Argentina, July 12-24, 2021.

“A way to travel through the KSBA compactification: wormholes”, Oberseminar Algebraische Geometrie, Leibniz Universität Hannover, online Germany, July 1st, 2021.

“Geografía vs log geografía, sumas de Dedekind, fracciones continuas, etc”, Seminario grupo de estudio, Universidad Federal Fluminense, online Brazil, May 14th, 2021.

“Variedades complejas rígidas”, Seminario del grupo de geometría de la Universidad Central de Ecuador, online Ecuador, March 22nd, 2021.

“Sobre libertades geográficas del grupo fundamental de superficies de tipo general”, Seminario Nacional de Geometría Algebraica, March 10th, 2021, online México.

“On wormholes in the moduli space of surfaces”, workshop Moduli and Hodge Theory, February 1st-5th, 2021, IMSA, Miami, online USA.

“Configuraciones de curvas planas”, Cursillo de investigación en verano UC, online Chile, January 4-5-6-7-8, 2021.

“Accumulations points for low slopes”, Algebraic Geometry Seminar Cracow, online Poland, December 3rd, 2020.

“Las fracciones continuas del 0”, Piqueos Matemáticos, PUC-Perú, November 26th, online 2020.

“La influencia del computador en algunos de mis teoremas”, Seminario de pregrado del CAM, PUC, October 23rd, 2020.

“On the geography of complex surfaces of general type with an arbitrary fundamental group” online geometry seminar Freemath <https://freemath.xyz>, August 20th, 2020.

“The savage geography of surfaces of general type”, Panoramic talk, Escuela Latinoamericana de Geometría Algebraica ELGA IV, Talca, Chile, December 2nd-13th, 2019.

“Una breve introducción a geometría algebraica: Configuraciones de rectas en el plano” Escuela de Matemática de América Latina y el Caribe EMALCA, Potosí, Bolivia, September 16th - 20th, 2019.

“On the volumes of stable surfaces” Sesión de Geometría, Congreso de Matemática Capricornio COMCA, U de La Serena, August 1st, 2019.

“Fracciones Continuas en Geometría Algebraica” Conferencia plenaria, Congreso de Matemática Capricornio COMCA, U de La Serena, August 1st, 2019.

“On the explicit MMP for one parameter degenerations of surfaces”, 3 lectures at the workshop Algebraic and Symplectic aspects in degenerations of complex surfaces, KIAS, Seoul, South Korea, June 24th-28th, 2019.

“Geometría asociada a fracciones continuas”, Coloquio Universidad Técnica Federico Santa María, Valparaíso, June 13th, 2019.

“Fibras de Milnor en superficies complejas”, Coloquio Universidad de Chile, Santiago, June 5th, 2019.

“Hyperbolic complete intersections”, Algebraic Geometry Seminar, Universidade do Porto, Portugal, February 1st, 2019.

“On explicit boundedness for surfaces”, Colloquium of Geometry and Arithmetics, Rio de Janeiro, Brazil, November 30th, 2018.

“Hyperbolic complete intersection surfaces”, Algebraic Surfaces and Related Topics, School of Mathematical Sciences, Xiamen University, China, September 24-28, 2018.

“Variedades hiperbólicas”, Santiago Number Theory & Algebra Seminar (SaNTAS), Santiago, June 27th, 2018.

“Un problema geométrico con cuadrados latinos”, Club de Matemática, PUC Chile, June 1st, 2018.

“Optimal bounds for singularities in stable surfaces”, Modern and Classical aspects on algebraic surfaces, Pedagogical University of Cracow, Poland, 22-28 April, 2018.

“Optimal bounds for T-singularities in stable surfaces”, Seventh Iberoamerican Congress on Geometry, January 22-26, 2018, Valladolid, España.

“On K^2 for stable surfaces”, Center for Mathematics, Faculty of Sciences, University of Porto, Portugal, January, 2018.

“Some ways to compute the fundamental group of a Godeaux surface”, invited speaker, Quadratic Forms in Chile 2018 (and celebration of Ricardo Baeza’s 75th birthday), IMAFI Talca, January 8-12, 2018.

“¿Cómo calcular el grupo fundamental con geometría algebraica?” Encuentro Post-Mat2017, UChile-USACH-PUC, December 7th, 2017.

“*On geography of arrangements of lines*”, Geometry at the Frontier II, Pucón, Chile, November 16th, 2017.

“Geometría con Cuadrados Latinos”, Primer Encuentro de la Geometría y Topología, UMCE, Santiago, November 6th, 2017.

“Distribución de K^2 para superficies estables”, Sesión de Geometría Algebraica y Aritmética, SOMACHI 2017, Talca, November 3th, 2017.

“Optimal bounds for T-singularities in stable surfaces”, Brazil-Mexico 3rd Meeting on Singularities, Cuernavaca, Mexico, August 6-11, 2017.

“Optimal bounds for T-singularities in stable surfaces”, Mini workshop on algebraic surfaces 2017, KIAS, Seoul, South Korea, July 17th, 2017.

“Sobre la Belleza del Álgebra en la Geometría”, II Semana de la Matemática, Instituto Nacional, Santiago, May 11, 2017.

“Arreglos de rectas en el plano”, Coloquio de Matemáticas UACH, Valdivia, May 5th, 2017.

“Caracterización de las superficies de Kollár II”, Sesión de Geometría, XXX Jornada de Matemática de la Zona Sur, Concepción, April 26-28, 2017.

“Geometría con Álgebra”, Charla inaugural del año académico 2017 del Taller de Razonamiento Matemático TRM, PUC Chile, April 26, 2017.

“Geografía de configuraciones en el plano”, general talk, Instituto de Matemáticas y Ciencias Afines IMCA, Lima, Perú, February 20, 2017.

“Classifying algebraic surfaces”, Encuentro Conjunto SOMACHI-UMA, plenary talk, Valparaíso, Chile, December 14-17, 2016.

“On Geography and Moduli of Surfaces of General Type”, Algebraic Geometry North-Eastern Series, AGNES Umass Amherst, USA, November 4-6, 2016.

“On Surfaces of General Type”, Algebraic Geometry Seminar, University of Michigan, Ann Arbor, USA, October 25th, 2016.

“On Godeaux Surfaces”, BC-Northeastern Algebraic Geometry Conference, Boston College, USA, October 15th, 2016.

“On Surfaces of General Type”, Algebraic Geometry Seminar, University of Georgia Athens, USA, September 21st, 2016.

“How to identify Milnor fibers of smoothings of quotient singularities”, XXI Coloquio Latinoamericano de Álgebra, Commutative Algebra and Algebraic Geometry Session, Buenos Aires, Argentina, July 25-29, 2016.

“How to identify Milnor fibers of smoothings of quotient singularities”, CLAM V, Algebraic Geometry Session, Barranquilla, Colombia, July 11-15, 2016.

“**Sobre rectas en el plano proyectivo II**” Seminario de Aritmética y Geometría de Valparaíso, UV, Valparaíso, June 22, 2016.

“**Sobre rectas en el plano proyectivo**”, III encuentro Chileno de Teoría de números, Facultad de Matemáticas PUC, Santiago, May 19-20, 2016.

“The Craighero-Gattazzo surface is simply-connected”, Workshop on Algebraic Surfaces and Moduli, KAIST, Daejeon, South Korea, April 11-15, 2016.

“On geography of surfaces: Results and Techniques”, Mini-Workshop: Arrangements of Subvarieties, and their applications in Algebraic Geometry, Mathematisches Forschungsinstitut Oberwolfach, Germany, February 28 to March 5, 2016.

“Geography in positive characteristic and connections with Kawamata-Viehweg vanishing theorem”, Conference on Algebraic Surfaces and Related Topics, International Centre for Theoretical Sciences ICTS-TIFR, Bangalore, India, November 21-30, 2015.

“Geografía de superficies simplemente conexas en característica $p > 0$ ”, Sesión de Geometría, Congreso de Matemática Capricornio COMCA, Universidad Arturo Prat, Iquique, August 5, 2015.

“Geografía de superficies complejas simplemente conexas”, Conferencia plenaria, Congreso de Matemática Capricornio COMCA, Universidad Arturo Prat, Iquique, August 7, 2015.

“On Chern slopes of simply connected surfaces in any characteristic”, invited speaker for the II Latin American School of Algebraic Geometry and Applications (II ELGA) Cabo Frio, Brazil, June, 2015.

“Densidad de Pendientes de Chern” Coloquio del Departamento de Matemáticas, Facultad de Ciencias, Universidad de Chile, Santiago, April 8, 2014.

“Exploring KSBA boundary”, invited speaker (3 lectures) for the Winter School on Algebraic Surfaces 2015, Korea Institute for Advanced Studies (KIAS), South Korea, January, 2015.

“Geografía simplemente conexa para toda característica” Seminario de Aritmética y Geometría de Valparaíso, IMA, PUCV, Valparaíso, October 28, 2014.

“Ecuaciones de Pell, fracciones continuas del cero, triangulación de polígonos, singularidades, etc” Coloquio del Departamento de Matemáticas, Facultad de Ciencias, Universidad de Chile, Santiago, October 22, 2014.

“Simply connected geography”, The Valley Geometry Seminar, University of Massachusetts at Amherst, June 20, 2014.

“Geografía de superficies simplemente conexas con índice positivo”, XXVII Jornada de Matemática de la Zona Sur, Trailanqui, 23-24-25 de Abril de 2014.

“Espacios de móduli de superficies algebraicas de género cero”, Coloquio Instituto de Matemática, Universidad de Talca, 3 de Abril de 2014.

“Degeneraciones (Q-Gorenstein) de superficies racionales via degeneraciones de curvas planas”, Sesión geometría algebraica, XXVI Jornada de Matemática de la zona sur, 24-25-26 Abril 2013, Quinamávida, Región del Maule, Chile.

“Moduli of stable surfaces and extremal neighborhoods of type I and II”, XIX Coloquio Latinoamericano de Álgebra, Diciembre 2012, Pucón, Chile.

“Flipping surfaces” and “Around $p_g=0$ stable surfaces”, Seminar in Mathematics, Korean Institute for Advanced Study, Seoul, Korea, 2-July-2012.

“Límites de superficies”, Taller de Geometría, Universidad de Chile, Santiago, Chile, 15 de Junio de 2012.

“¿Qué es la geometría algebraica?”, Coloquio de Matemáticas, Universidad Adolfo Ibañez, Santiago Chile, 8 de Junio de 2012.

“Límites de superficies”, Seminario de Aritmética y Geometría de Valparaíso, Instituto de Matemáticas PUCV, Valparaíso, 1 de Junio 2012.

“Superficies de Campedelli simplemente conexas con una involución”, XXV Jornada de Matemática de la Zona Sur (<https://sites.google.com/site/xxvjsur2012/>), Concepción, Chile, 18-20 Abril 2012.

“Cursillo: Singularidades cíclicas en dimensión dos”, XXV Jornada de Matemática de la Zona Sur (<https://sites.google.com/site/xxvjsur2012/>), Concepción, Chile, 18-20 Abril 2012.

“Aspectos geométricos de las fracciones continuas”, Sesión Invitada Geometría, LXXX Encuentro Anual Sociedad de Matemática de Chile, 3-4-5 Noviembre 2011.

“Flipping surfaces”, I Latin American School of Algebraic Geometry and Applications, ELGA 2011, Cordoba, Argentina, August 8-12, 2011.

“Flipping surfaces”, The Valley Geometry Seminar, University of Massachusetts at Amherst, April 22, 2011.

“The random surfaces of a projective curve”, V Iberoamerican Congress on Geometry, Pucon, Chile, December 10th to 13th, 2010.

“Genus zero surfaces of general type”, School on Complex Geometry, Pucón, Chile, December 7th to 9th, 2010.

“Varieties defined by arrangements”, Algebra seminar, University of Connecticut, Storrs, USA, November 30th, 2010.

“Arrangements of Riemann surfaces in complex surfaces”, Differential Geometry & Symplectic Topology seminar, University of Minnesota, USA, November 4th, 2010.

“Configuraciones de curvas y las variedades que definen”, Coloquio, Universidad de Concepción, Concepción, Chile, January 4, 2010.

“Dedekind sums in Abelian covers”, BIRS Workshop 09w5102, Dedekind sums in geometry, topology, and arithmetic, BIRS, Alberta, Canada, October 11-16, 2009.

“Simply connected geography and log surfaces”, Workshop on algebraic surfaces and related topics, KIAS and Sogang University, Korea, August 18-21, 2009.

“Algebraic surfaces associated to arrangements”, The Valley Geometry Seminar, University of Massachusetts at Amherst, February 13, 2009.

“Superficies algebraicas y arreglos de curvas”, Seminario de Geometría Compleja, Pontificia Universidad Católica de Chile, January 6, 2009.

“Simply connected random surfaces”, 1042th AMS meeting, Special Session on Algebraic Geometry, Wesleyan University, Middletown, CT, October 12, 2008.

“Arrangements of curves and algebraic surfaces”, MSCS Algebraic Geometry Seminar, University of Illinois at Chicago, March 11, 2008.

“Arrangements of curves and algebraic surfaces”, Arithmetic and Geometry Seminar, Institute for Mathematics, Humboldt-University Berlin, Germany, January 22, 2008.

“On line arrangements with applications to 3-nets”, The Valley Geometry Seminar, University of Massachusetts at Amherst, September 7, 2007.

“Configuraciones de líneas” & “Configuraciones y moduli de curvas”, Seminario de Geometría Compleja, Pontificia Universidad Católica de Chile, June 7 & 12, 2007.

“Stacks y moduli de curvas” (I, II and III), Seminario de Geometría Compleja, Pontificia Universidad Católica de Chile, June 5, 6 and 7, 2006.

“Superficies de Lefschetz”, Simposio Chileno de Matemática, Punta Arenas, Chile 2002.

Teaching

Segundo Semestre 2022: Introducción a la Geometría, pregrado, PUC.

Primer Semestre 2022: Topología, pregrado, PUC.

Segundo Semestre 2021: Geometría Algebraica, postgrado, PUC.

Primer Semestre 2021: Introducción a la Geometría Algebraica, pregrado, PUC.

Primer Semestre 2020: Introducción a la Geometría Algebraica, pregrado, PUC.

Primer Semestre 2019: Introducción a la Geometría Algebraica, pregrado, PUC.

Segundo Semestre 2018: Geometría Algebraica (Superficies), posgrado, PUC.

Primer Semestre 2018: Introducción a la Geometría, pregrado, PUC.

Segundo Semestre 2017: Álgebra Abstracta I, pregrado, PUC.

Primer Semestre 2017: Introducción a la Geometría, pregrado, PUC.

Primer Semestre 2017: Álgebra Abstracta I, curso de pregrado, PUC.

Primer Semestre 2016: Introducción a la Geometría, curso de pregrado, PUC.

Segundo Semestre 2015: Geometría y Topología, curso de posgrado, PUC.

Primer Semestre 2015: Introducción a la Geometría, curso de pregrado, PUC.

Segundo Semestre 2014: Algebra Abstracta II, curso de pregrado, PUC.

Primer Semestre 2014: Introducción a la Geometría Algebraica, curso de pregrado, PUC.
Primer Semestre 2013: Geometría Algebraica, curso de posgrado, PUC.
Primer Semestre 2012: Introducción a la Geometría Algebraica, curso de pregrado, PUC.
Segundo Semestre 2011: Topología, curso de pregrado, PUC.
Spring 2011: Linear Algebra, U of Mass Amherst.
Fall 2010: Introduction to Abstract Algebra I, U of Mass Amherst.
Spring 2010: Multivariable Calculus, U of Mass Amherst.
2008-2009: Calculus I and II, U of Mass Amherst.
Summer 2008: Calculus III, U of Michigan.
Winter 2008: Differential Equations, U of Michigan.

Some Other Activities

Research In Pairs with Jenia Tevelev at Mathematisches Forschungsinstitut Oberwolfach, Germany, 19 June – 1 July, 2022.

Research Visit, Center for Mathematics, Faculty of Science, University of Porto, Portugal, February, 2019.

Research Visit, Department of Mathematics & Statistics, University of Massachusetts Amherst, Amherst, USA, August-December, 2016.

Research Visit, School of Mathematics, Korea Institute for Advanced Study (KIAS), Seoul, South Korea, February 2015 and February 2023.

Research Visit, Max Plank Institute for Mathematics, Bonn, Germany, June-August, 2010.

Organizer of several mathematical activities at PUC, please see my webpage <http://www.mat.uc.cl/~urzua/>.

December 2006: (with Dave Anderson) Organization of a weekend workshop on algebraic curves, Student Algebraic Geometry Seminar, University of Michigan.