

RAFAEL ALCARAZ BARRERA

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RESEARCH INTERESTS

General research interests: Symbolic and topological dynamics, ergodic theory, one-dimensional dynamics, fractal geometry and dimension theory, and number theory.

Current and specific research directions

- Expansions of real numbers and their generating maps. In particular, expansions in non-integer bases and β -transformations, and Lüroth-like transformations.
- Open dynamical systems in one-dimensional settings.
- Dimensional properties of chaotic and exceptional sets in one-dimensional dynamics.
- Lexicographic and symbolic spaces.

ACADEMIC POSITIONS

SINCE DECEMBER 2022	Postdoctoral Researcher (with teaching responsibilities) , SECIHTI Instituto de Física, Universidad Autónoma de San Luis Potosí (UASLP), Mexico
OCT 2019 – SEPT 2020	Visiting Lecturer , CONACYT Programa de Retención y repatriación. Instituto de Física, UASLP, Mexico
DEC 2016 – SEPT 2019	Postdoctoral Researcher , FORDECYT-CONACYT-UNAM Instituto de Física, UASLP, Mexico
JUL 2015 – DEC 2016	Postdoctoral Researcher , FAPESP Institute of Mathematics and Statistics, University of São Paulo, Brazil

EDUCATION

- 2014 PHD IN MATHEMATICAL SCIENCES (Pure Mathematics),
School of Mathematics, University of Manchester, Manchester, UK.
Thesis: [Topological and Symbolic dynamics of the doubling map with a hole](#).
Supervisor: Dr. Nikita Sidorov
- 2010 MSC IN MATHEMATICS.
Unidad Cuernavaca, Instituto de Matemáticas, Universidad Nacional Autónoma de México (UNAM).
Thesis: [Construcción de medidas SRB en difeomorfismos hiperbólicos](#).
Supervisor: Dr. Germán Aubin Arroyo Camacho.
- 2007 BSC IN MATHEMATICS.
Faculty of Sciences, UNAM,
Thesis: [Sobre la propiedad del punto fijo en hiperespacios de continuos](#).
Supervisor: Prof. Sergio Macías Álvarez.

PUBLICATIONS AND PREPRINTS

Peer-reviewed Journal Articles

1. Y. Hu, R. Alcaraz Barrera, and Y. Zou. *Topological and dimensional properties of univoque sets of double-base expansions*. **Topology and its Applications** 366 (2025), Article 109294, 31 pp.
<https://doi.org/10.1016/j.topol.2025.109294>.
2. R. Alcaraz Barrera, and G. González Robert. *Chaotic sets and Hausdorff dimension of Lüroth expansions*. **Journal of Mathematical Analysis and Applications** 514(2) (2022), 126324.
<https://doi.org/10.1016/j.jmaa.2022.126324>.
3. R. Alcaraz Barrera. *On the specification property and synchronisation of unique q -expansions*. **Ergodic Theory and Dynamical Systems** 41(9) (2021), 2659–2705.
<https://doi.org/10.1017/etds.2020.55>.
4. R. Alcaraz Barrera, S. Baker, and D. Kong. *Entropy, topological transitivity and dimensional properties of unique q -expansions*. **Transactions of the American Mathematical Society** 371(5) (2019), 3209–3258.
<https://doi.org/10.1090/tran/7370>.
5. R. Alcaraz Barrera. *Topological and ergodic properties of symmetric subshifts*. **Discrete and Continuous Dynamical Systems, Series A** 34(11) (2014), 4459–4486.
<https://doi.org/10.3934/dcds.2014.34.4459>.

Preprints (available on arXiv)

1. R. Alcaraz Barrera. *Intrinsic ergodicity of open dynamical systems for the doubling map*. arXiv:1509.00255.
2. R. Alcaraz Barrera. *Topological dynamics of the doubling map with asymmetrical holes*. arXiv:1506.00067.

Manuscripts in Preparation (selected)

1. R. Alcaraz Barrera, and C. Osorio Anderson. *Chaotic dynamics, topological properties and Hausdorff dimension in a family of symmetric β -expansions*.
2. R. Alcaraz Barrera, and A. López Santos. *Persistence of chaotic sets and dimension for double standard maps*.
3. R. Alcaraz Barrera, D. Lugo, and G. Honorato. *The family of double standard maps as open dynamical systems*.

SHORT-TERM RESEARCH VISITS

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| Aug 2023 | College of Mathematics and Statistics, Shenzhen University.
Host: Prof. Yuru Zou. |
| Nov 2022 | Unidad Cuernavaca, Instituto de Matemáticas, UNAM.
Host: Dr. Germán Aubin Arroyo Camacho. |
| Oct 2021 | Instituto de Matemáticas, UNAM.
Host: Dr. Ricardo Gómez Aíza. |

- Dec 2019 **Research and Modeling Centre for Random Phenomena – Valparaíso (CIMFAV)**,
Universidad de Valparaíso.
Host: Dr. Gerardo Honorato.
- Jun–July 2016 **School of Mathematical Sciences**, Yangzhou University.
Host: Dr. Derong Kong.
- Aug 2015 **Department of Mathematics**, Utrecht University.
Host: Prof. Karma Dajani.
- Apr 2014 **Jussieu–PRG Institute of Mathematics** Pierre and Marie Curie University (Paris VI).
Host: Prof. Jean-Paul Allouche.

RESEARCH STUDENT SUPERVISION

PhD Students

- 2025–2029 **Adriana López Santos** (current).
PhD in Applied Sciences (Applied Mathematics), UASLP.
Thesis: *Standard perturbations of chaotic sets in one-dimensional dynamics*.
- 2025–2029 **Carlos Rubén Osorio Anderson** (current).
PhD in Applied Sciences (Applied Mathematics), UASLP.
Thesis: *Size properties of chaotic sets for symmetric β -transformations and related problems*.
- 2020–2024 **Diego Lugo Ojeda** (completed). Co-supervision with G. Honorato.
PhD in Mathematics (Inter-university Consortium), Chile.
Universidad de Valparaíso, Pontificia Universidad Católica de Valparaíso,
and Universidad Técnica Federico Santa María.
Thesis: *Julia sets for Halley’s method, double standard maps and maps with holes*.

MSc Students

- 2026 **Alfa Karen Martínez Hernández** (current).
MSc in Applied Sciences (Applied Mathematics), UASLP.
Thesis: *Estudio computacional de algunas conjeturas en sistemas dinámicos*.
- 2025 **Adriana López Santos** (completed).
MSc in Applied Sciences (Applied Mathematics), UASLP.
Thesis: *Caos topológico para la dinámica del intervalo*.
- 2024 **Carlos Rubén Osorio Anderson** (completed).
MSc in Applied Sciences (Applied Mathematics), UASLP.
Thesis: *Expansiones universales y la transformación q -aleatoria*.
- 2022 **Maricela Vidal Ramírez** (completed).
MSc in Applied Sciences (Applied Mathematics), UASLP.
Thesis: *Propiedades del triángulo de Sierpinski generalizado*.

BSc Students

- 2026 **Pedro Cabrera Coronado** (completed).
BSc in Applied Mathematics, UASLP.
Thesis: *La dimensión de Fourier y una modificación en conjuntos de Salem*.
- 2026 **Laura Itzel Guirado Álvarez** (current).
BSc in Applied Mathematics, UASLP.
Thesis: *Equivalencias entre mezcla topológica y la propiedad de especificación en continuos unidimensionales*.
- 2026 **Karen Alejandra Ramírez Collado** (current).
BSc in Applied Mathematics, UASLP.
Thesis: *Gráficas aleatorias y procesos estocásticos*.

TEACHING EXPERIENCE

Lecturer (during postdoctoral appointments)

Postgraduate Level

Universidad Autónoma de San Luis Potosí, Graduate Programme in Applied Sciences (Applied Mathematics): Real Analysis. Dynamical Systems I (three occasions). Dynamical Systems II (two occasions). Symbolic Dynamics (two occasions).

Universidad Autónoma de San Luis Potosí, Graduate Programme in Interdisciplinary Sciences Interdisciplinary Workshop: Mathematical Foundations of Genetic Models. Pre-sessional Mathematics Course for Medical Physics Students.

Undergraduate Level

Universidad Autónoma de San Luis Potosí, Faculty of Sciences, BSc in Applied Mathematics: Discrete Dynamical Systems (three occasions). Topology of Metric Spaces. Measure Theory. Selected Topics in Mathematical Analysis II: Ergodic Theory. Selected Topics in Mathematical Analysis I: Fractal Geometry. Integral Calculus on one variable.

Universidad Autónoma de San Luis Potosí, Faculty of Sciences, BSc in Mathematics Education: Mathematical Analysis I. Mathematical Problem Solving I.

Universidad Autónoma de San Luis Potosí, Faculty of Sciences, BSc in Biophysics: Calculus III (multivariate calculus).

Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), Guadalajara, BSc in Data Science Engineering: Topological Data Analysis.

Universidad Politécnica de San Luis Potosí, BSc in Information Technologies Engineering: Mathematics III (Linear Algebra).

ENES Morelia, Universidad Nacional Autónoma de México, BSc in Information Technologies for Science: Dynamical Systems. (two occasions).

Short Courses and Workshops

- *Expansions of real numbers. Dynamics and Geometry.* **Latin American and Caribbean School of Mathematics (EMALCA)**, Amazonas, Centre for Superior Studies of Parintins, State University of Amazonas CESP/UEA, Parintins, Brazil, May 2026.
- *Ergodic Theory for Number Theory.* Universidad Nacional Autónoma de Honduras, **I Congress of Physics and Mathematics.** 2025.
- *Complex Analysis.* Mesoamerican Centre for Theoretical Physics (MCTP), **National Preparatory Course.** 2022.
- *Fundamentals of Topological and Symbolic Dynamics.* **Summer School on Dynamical Systems Dinámica Potosina**, UASLP. 2021.
- *Ergodic Theory of β -expansions.* **Online Mathematics Seminar**, Universidad de El Salvador. 2020.
- *Entropy.* **XIV Student Workshop on Continuum Theory, Hyperspaces and Dynamical Systems**, UNAM. 2019.

- Introduction to Dynamical Systems and Ergodic Theory. Universidad de San Carlos de Guatemala. 2019.
- *The Specification Property in One-Dimensional Dynamics*. XIII Student Workshop on Continuum Theory, Hyperspaces and Dynamical Systems, BUAP. 2018.
- *Non-integer Base Expansions*. Summer School on Dynamical Systems Dinámica Potosina, UASLP. 2018.
- *Introduction to Ergodic Theory*. Universidad de El Salvador. 2017.
- *Introduction to Topological Dynamics*. Universidad de El Salvador. 2016.

Teaching Assistant Experience

- **University of Manchester, School of Mathematics** (2010–2014). Undergraduate courses in pure and applied mathematics for mathematicians, engineers and computer scientists, including: introduction to mathematical thinking, introductory analysis, sequences and series, real and complex analysis, linear algebra, and mathematical techniques for computer science.
- **UNAM , Faculty of Sciences** (2008, 2010). Undergraduate courses in modern geometry, topology, advanced algebra, and differential and integral calculus.
- **Universidad Autónoma Metropolitana (UAM), Iztapalapa** (2010). Undergraduate courses in ordinary differential equations and introduction to mathematical thinking.

ACADEMIC EVALUATION, EXAMINATION AND REFEREEING

Refereeing for Indexed Journals

I have served as a referee for *Nonlinearity*, *Journal of the London Mathematical Society*, *Proceedings of Machine Learning Research ALT 2017*, *Discrete and Continuous Dynamical Systems*, *Indagaciones Mathematicae*, *Publicationes Mathematicae Debrecen*, *Ergodic Theory and Dynamical Systems*, *Pacific Journal of Mathematics*, *Discrete Applied Mathematics*, *Journal of Difference Equations and Applications*, *Advances in Mathematics*, *Boletín de la Sociedad Matemática Mexicana*. Reviewer for *MathSciNet* and *ZbMath*.

Doctoral Thesis Examination Committees

- 2026 **Irma León Torres**.
PhD in Applied Sciences (Applied Mathematics), UASLP.
Thesis: *Low complexity ranks and multivariate equicontinuity for minimal actions*.
Supervisor: Dr. Felipe García-Ramos Aguilar.
- 2026 **Victor Martín Muñoz López**.
PhD in Applied Sciences (Applied Mathematics), UASLP.
Thesis: *Local Sequence Entropy Theory*.
Supervisor: Dr. Felipe García-Ramos Aguilar.
- 2025 **Carlos Gustavo Reyes Pacheco**.
PhD in Applied Sciences (Applied Mathematics), UASLP.
Thesis: *Hereditary Subshifts*.
Supervisor: Dr. Felipe García-Ramos Aguilar.

- 2025 **Andrea Esmeralda Alba Casillas.**
 PhD in Applied Sciences (Applied Mathematics), UASLP.
 Thesis: *Shadows and Knots: Theorems and Algorithms.*
 Supervisor: Dr. Gelasio Salazar Anaya.
- 2022 **Luguis de los Santos Baños.**
 PhD in Applied Sciences (Applied Mathematics), UASLP.
 Thesis: *Classifying Cellular Automata using Order and Chaos.*
 Supervisor: Dr. Felipe García Ramos Aguilar.

Doctoral Candidacy and Qualifying Committees

- 2022–2026 **Luis Fernando Meraz.**
 PhD in Interdisciplinary Sciences, UASLP,
 Project: *¿Cómo afectan las redes de regulación genética a la estructura de las redes de diferenciación celular?.*
 Supervisor: Dr. Carlos Arturo Espinosa Soto.
- 2023 **Diana Patricia Rivera Segundo.**
 PhD in Mathematical Sciences, UNAM.
 Project: *Sistemas dinámicos, Teoría Ergódica y Teoría de Números.*
 Supervisor: Dr. Germán Aubín Arroyo Camacho.
- 2017–2021 **Luis Armando Corona Popoca.**
 PhD in Sciences, Universidad Autónoma del Estado de Morelos.
 Project: *Modelos de la mecánica estadística en dinámica simbólica.*
 Supervisors: Dr. Raul Salgado García, Prof. Edgardo Ugalde Saldaña.

MSc Thesis Examination Committees

- 2025 **Carlos Enrique Salazar Hernández.**
 MSc in Applied Sciences (Applied Mathematics), UASLP.
 Thesis: *Monte Carlo con restricciones topológicas.*
 Supervisors: Dr. Luis Armando Corona Popoca. Dr. Edgardo Ugalde Saldaña.
- 2025 **Cuauhtémoc Alejandro López Esparza.**
 MSc in Applied Sciences (Applied Mathematics), UASLP.
 Thesis: *Evolución de las Convenciones Sociales: Un enfoque desde la Sociofísica.*
 Supervisors: Dr. Edgardo Ugalde Saldaña, Dr. Antonio Aguilera Ontiveros.
- 2025 **Brenda Karime Álvarez Ortiz.**
 MSc in Applied Sciences (Applied Mathematics), UASLP.
 Thesis: *Entropy and Board Games.*
 Supervisor: Dr. Felipe García Ramos Aguilar.
- 2025 **Karla Georgina Orozco Pérez.**
 MSc in Applied Sciences (Applied Mathematics), UASLP.
 Thesis: *Estudio de las preferencias electorales en Zacatecas.*
 Supervisors: Dr. Edgardo Ugalde Saldaña, Dr. Andrea Arlette España Tinajero.
- 2023 **Aldo Emmanuel Montelongo Bahena.**
 MSc in Applied Sciences (Applied Mathematics), UASLP.
 Thesis: *Estudio del espectro de permutaciones sobre matrices de Fourier de dimensión que es un número primo o potencia de primo.*
 Supervisor: Dr. Lev Glevsky.
- 2021 **Irma León Torres.**
 MSc in Applied Sciences (Applied Mathematics), UASLP.
 Thesis: *Multisensibilidad en Hiperespacios.*
 Supervisor: Dr. Alicia Santiago Santos.

2021 **Carlos Gustavo Reyes Pacheco.**
MSc in Applied Sciences (Applied Mathematics), UASLP.
Thesis: Medidas de entropía máxima.
Supervisor: Dr. Felipe García-Ramos Aguilar.

BSc Thesis Examination Committees

- 2025 **Enrique Alejandro González Herrera.**
BSc in Applied Mathematics, UASLP.
Thesis: *Estructuras simétricas izquierdas en álgebras de Lie cosimplécticas*
Supervisor: Dr. Gil Salgado González
- 2025 **Juan Guadalupe Rodríguez Jarero.**
BSc in Applied Mathematics, UASLP.
Thesis: *Álgebras de Lie de Frobenius*
Supervisors: Dr. María del Carmen Rodríguez Vallarte Dr. Gil Salgado González
- 2010 **Jorge Ken Mendoza Hashimoto.**
BSc in Mathematics, UNAM.
Thesis: *Generadores del politopo de pesos por símbolo asociados a sistemas de ciclos de cadenas de Markov.* Supervisor: Dr. Ricardo Gómez Aíza.

Academic Service Projects (Servicio Social, Mexico)

- 2024 Paola Denisse García Arriaga.
BSc in Applied Mathematics, UASLP.
- 2019–2020 Andrea Esperalda Alba Casillas
MSc in Applied Sciences (Applied Mathematics), UASLP.
- 2019 Maricela Vidal Ramírez
MSc in Applied Sciences (Applied Mathematics), UASLP.

PARTICIPATION IN CONFERENCES AND SEMINARS

Invited Conferences and Workshops

1. National Congress of the Mexican Mathematical Society, Puebla, Mexico, October 2025.
2. Fourth Colloquium of Academic Bodies and Research Groups, Mexican Mathematical Society, August 2025.
3. First Congress of Physics and Mathematics, National Autonomous University of Honduras (UNAH), San Pedro Sula, Honduras, August 2025.
4. International Day of Mathematics Celebration, Faculty of Sciences, UASLP, March 2025.
5. Latin American and Caribbean School of Mathematics (EMALCA), Morelia, Centre for Mathematical Sciences, UNAM, June 2023.
6. Latin American and Caribbean School of Mathematics (EMALCA), Amazonas, Institute of Exact Sciences and Technology, Federal University of Amazonas (ICET/UFAM), Itacoatiara, Brazil, October 2022.
7. Online National Congress of the Mexican Mathematical Society, October 2020.
8. Workshop on Dynamical Systems, Graph Theory and Biological Networks, Universidad de Valparaíso, Chile, December 2019.
9. XV Symposium on Analysis and Mathematical Physics, Autonomous University of the State of Hidalgo, Pachuca, Mexico, November 2019.

10. XI Workshop on Algebra and Topology, Universidad Autónoma de San Luis Potosí, Mexico, November 2017.
11. Dinámica Nacional Cuernavaca 2015, Unidad Cuernavaca, Instituto de Matemáticas UNAM, Mexico, November 2015.
12. Encontro Paulista de Alunos em Dinâmica, Institute of Mathematics and Statistics, University of São Paulo, Brazil, November 2015.
13. Expansions in Non-Integer Bases Workshop, Utrecht University, The Netherlands, August 2015.
14. YRM Satellite Meeting for PhD Students in Dynamical Systems and Ergodic Theory, University of Warwick, UK, March 2012.

Contributed Talks

1. Jornadas de Dinámica Potosina: Una introducción al posgrado, IF-UASLP, December 2024.
2. Joint SLP–Mexico City School on Dynamics, Combinatorics and Probability, Universidad Autónoma de San Luis Potosí, June 2024.
3. SIAM Mexico Annual Meeting, Centre for Scientific Research and Higher Education of Ensenada (CICESE), Mexico, December 2019.
4. IX Jornadas de Topología, UNAM, February 2018.
5. Numeration 2016, Czech Technical University in Prague, Czech Republic, May 2016.
6. Wandering Seminar, Jagiellonian University, Kraków, Poland, May 2016.
7. Workshop on Topology and Dynamics (TopDin 2016), Fluminense Federal University, Brazil, February 2016.
8. 17th Galway Topology Colloquium, University of Birmingham, UK, June–July 2014.
9. II Student Workshop on Continuum Theory, Instituto de Matemáticas UNAM, Mexico, November 2007.
10. I Student Workshop on Continuum Theory, Instituto de Matemáticas UNAM, Mexico, November 2006.

Invited Seminar Talks

1. Seminario Permanente de Teoría de Continuos e Hiperespacios – Faculty of Sciences, Universidad Autónoma del Estado de México, February 2026
2. Independent Research Meetings in Mathematics (R.I.I.MAT), Online Seminar Series 2025-2, Colombia, October 2025.
3. Interinstitutional Mathematics Colloquium 2025-I, Universities of Guadalajara, Sonora and Guerrero, March 2025.
4. Mathematics Seminar, Centre for Research in Sciences, Autonomous University of the State of Morelos (UAEM), Cuernavaca, Mexico, March 2025.
5. Applied Mathematics Seminar, University of the Papaloapan, Oaxaca, Mexico, November 2024.
6. Research Seminar, Centre for Research in Pure and Applied Mathematics (CIMPA), University of Costa Rica, May 2024.
7. Mathematical Colloquia #252, University of Panama, February 2024.

8. Seminar of the College of Mathematics and Statistics, Shenzhen University, China, August 2023.
9. Colloquium, Unidad Cuernavaca, Instituto de Matemáticas UNAM, Mexico, March 2023.
10. Seminar of the College of Mathematics and Statistics, Shenzhen University, China, November 2022.
11. Geometry and Dynamical Systems Seminar, Centre for Mathematical Research (CIMAT), Mexico, September 2021.
12. Mathematics Seminar, ITAM, Mexico, April 2021.
13. Centre for Research and Modelling of Random Phenomena (CIMFAV), Valparaíso, Chile, June 2021.
14. International Day of Mathematics Celebration, UASLP, March 2021.
15. Dynamical Systems Seminar, University of Liverpool, UK, October 2020.
16. Dinámica Porteña - Santiago Dynamical Systems Seminar, Chile, September 2020.
17. Chongqing Online Mathematics Seminar, University of Chongqing, China, July 2020.
18. Topology and Dynamical Systems Seminar, University of Birmingham, UK, March 2015 and September 2019.
19. Climate Change Programme Seminar, University of San Carlos, Guatemala, July 2019.
20. Mathematics Colloquium, University of Guadalajara, Mexico, February 2019.
21. Mathematics Education Seminar, Faculty of Sciences, UASLP, February 2019.
22. Tartaglia Seminar, IF-UASLP, February 2019, March 2021, April 2024.
23. Mathematics Colloquium, Autonomous University of Zacatecas, October 2017 and May 2021.
24. Applied Mathematics Seminar, IPICYT, Mexico, February 2017.
25. School of Mathematics Seminar, University of El Salvador, July 2016.
26. School of Mathematical Sciences Seminar, Yangzhou University, China, June 2016.
27. Dynamical Systems Seminar, IME-USP, August 2015 and April 2016.
28. Dynamical Systems Seminar, Unidad Cuernavaca, Instituto de Matemáticas UNAM, June 2009, November 2009, January 2015.
29. Manchester Dynamical Systems Seminar, February 2014.
30. Pure postgraduate seminars, School of Mathematics, University of Manchester. 5 talks, 2011–2014.
31. J.J. Charatonik Seminar on Continuum Theory, Instituto de Matemáticas UNAM, February and June 2007.

Posters

1. Mathematics Research Student Conference (MRSC), University of Manchester, UK, September 2014.
2. Workshop in Low-Dimensional Dynamics, IMPA, Brazil, November 2013.

PARTICIPATION IN ACADEMIC COMMITTEES AND BODIES

Graduate Programme Governance and Academic Evaluation

- Evaluator of MSc and PhD thesis progress reports, UASLP (since December 2022).

- Member of graduate admissions evaluation panels, including review of academic files and selection of applicants for MSc and PhD programmes in Applied Sciences (Applied Mathematics), UASLP (Since December 2022).
- Academic coordinator and evaluator for graduate programme management tasks, including student follow-up and academic monitoring.
- Designer and developer of thematic course contents for graduate-level mathematics courses (MSc and PhD).

Curriculum Design, Programme Development and Advisory Work

- Course design for the courses: General Topology, Dynamical Systems I and II, Symbolic Dynamics, Selected Topics on Mathematical Analysis of the Graduate Programme in Applied Sciences (Applied Mathematics), UASLP.
- Member of the academic team responsible for the creation of undergraduate degree programmes at Universidad Rosario Castellanos campus San Luis Potosí, Mexico.
- Participant in the design and establishment of the PhD programme in Sciences at the Universidad Nacional Autónoma de Honduras (UNAH).
- Contributor to the curricular revision and redesign of undergraduate and master's programmes in Mathematics at UNAH.

MEMBERSHIP IN ACADEMIC NETWORKS

Since 2025 [Sociedad Matemática Mexicana](#).

MATHEMATICAL OUTREACH AND ENGAGEMENT ACTIVITIES

Academic Events Organisation

- 2023–2025 Member of the Organising Committee of the *Semana del Instituto de Física*. UASLP, September 2023–2025
- 2024 Organiser
Dinámica Potosina Days: An Introduction to Graduate Studies
UASLP, 9–11 December 2024
- 2024 Organiser of the *Second Joint SLP-CDMX School on Dynamics, Combinatorics and Probability*
UASLP, 15–19 July 2024
- 2023 Logistics and Facilities Coordinator
Local Organising Committee, LVI National Congress of the Mexican Mathematical Society
UASLP, 23–27 October 2023
- 2019, 2023 Coordinator, Dynamical Systems Session of the *National Congress of the Mexican Mathematical Society*. October 2019, 2023
- 2018, 2021 Organiser of the *Summer Schools on Dynamical Systems, Dinámica Potosina*. UASLP, June, July, 2018, 2021
- 2019 Member of the Local Organising Committee of the *EMALCA 2019*
UASLP and
Universidad Autónoma de Zacatecas, 10–21 June 2019
- 2019 Organiser, Session on Continuum Theory and Dynamical Systems of the *X Jornadas de Topología*
Universidad Juárez del Estado de Durango, 1–3 May 2019
- 2018 Member of the Local Organising Committee of the *7th International Conference on Nonlinear Science and Complexity* UASLP, 14–17 August 2018

- 2011 Organiser of the *Mathematics Research Student Conference (MRSC)*
The University of Manchester, September 2011

Seminar Organisation

- 2024–2025 Organiser of the “Aguas de Lourdes” Mathematics Seminar
UASLP, August 2024 – December 2025
- 2018–2019 Website Administrator Dinámica Potosina Research Group
<http://www.ifisica.uaslp.mx/dinamica-potosina>
- 2017–2018 Organiser of the Tartaglia Mathematics Seminar, IF-UASLP
- 2016 Organiser of the Dynamical Systems Seminar, IME-USP

Science Communication and Public Engagement

- 2025 *Fibonacci*. Sound piece built with Alejandro Valencia Tobón, Colectivo Cucusonic, Medellín, Colombia. <https://erratico.info/Fibonacci>.
- 2023–2025 Organiser, Exhibitor and workshop facilitator at the *Scientific Experiments Fairs* organised by the *Secretaría de Educación del Gobierno del Estado*, SEGE San Luis Potosí.
- 2023–2025 Exhibitor and workshop facilitator at the *Science Fairs*, organised by the IF-UASLP, UASLP.
- 2020–2021 Radio host for *Coincidencias y Divergencias* at Magnética FM 101.7, San Luis Potosí.
- 2018–2025 Interviewee, at *Ciencia para Todos*, Radio Universidad UASLP, Magnética FM 101.7, San Luis Potosí. *Arilín’s Math World*, Mexico City, *Poetas Ruculistas*, International Poetry Festival of Santiago, Chile.
- 2024 Logistics support, *3rd π Run and Mathematics Fair*. Tangamanga I Park, San Luis Potosí, April 2024.
- 2019, 2023, 2025 Public lectures on *Football and Mathematics* and *Fractals and the Golden Ratio in Biology*.

PROFESSIONAL DEVELOPMENT TRAINING

- 2022 INSTITUTIONAL INDUCTION PROGRAMME, including courses on Use of the Blackboard Learning Platform, Matlab and Development of Teaching Competencies.
Universidad Politécnica de San Luis Potosí.
- 2010 GRADUATE TEACHING ASSISTANT TRAINING PROGRAMME.
Staff Training and Development Unit, **The University of Manchester.**
- 2010 SUPPORTING POSTGRADUATE TUTORS IN MATHEMATICS AND STATISTICS.
The Maths, Stats and OR Network, **The University of Manchester.**

Formal training in equality, diversity and inclusive teaching is currently in progress, through certified online programmes, as part of ongoing professional development (2026).

AWARDS, FELLOWSHIPS AND DISTINCTIONS

- 2023–2027 Member, **State System of Researchers**,
Council for Science and Technology of San Luis Potosí (COPOCyT), Mexico.
- 2023–2027 **National Researcher, Level I**,
National System of Researchers (SNII), SECIHTI, Mexico.
- 2022–2026 **Postdoctoral Fellowship**, SECIHTI.
National Programme for Postdoctoral Researcher Training and Consolidation, Mexico.
- 2020 **Research Visit Grant** (£2,258),
London Mathematical Society, UK.
Co-applicant: Dr. Simon Baker.
- 2019–2020 **Retention and Repatriation Fellowship**,
CONACYT, Mexico.
- 2018 **Outreach Grant** (MXN 10,000),
Mexican Mathematical Society for the organisation of the
Primera escuela de Verano en Sistemas Dinámicos, Dinámica Potosina.
- 2018–2020 Candidate, **National System of Researchers (SNI)**,
CONACYT, Mexico.
- 2017–2019 **Postdoctoral Fellowship**,
FORDECYT–CONACYT–UNAM (Grant No. 265667), Mexico.
- 2015–2017 **Postdoctoral Fellowship**,
São Paulo Research Foundation (FAPESP), Brazil.
- 2010–2014 **Doctoral Scholarship for Studies Abroad**,
CONACYT, Mexico.
- 2009 **Master’s Degree Completion Scholarship**,
UNAM, Mexico.
- 2007–2009 **Master’s Studies Scholarship**,
National Programme for Quality Postgraduate Studies (PNPC),
CONACYT, Mexico.

LANGUAGES

- Spanish Native.
- English English Professional proficiency (academic and teaching) IELTS 6.5, 2009.
- Portuguese Intermediate reading and conversational proficiency.