Elías Fuentes Guillén

eliasfg@flu.cas.cz
eliasfuentesguillen.com

Education

11.9.17 PhD, Logic and Philosophy of Science, University of Salamanca
Thesis: "The Germanic development of the pre-modern notion of number. From c. 1750 to Bolzano's *Rein analytischer Beweis*"
Advisors: José Ferreirós and María Manzano
(Summa *Cum Laude* with International Doctorate Mention)

2010 MPhil, Logic and Philosophy of Science, University of Salamanca

2008 BPhil, Philosophy, Autonomous University of the State of Mexico

Research stays

2018 Institute of Philosophy of the Czech Academy of Sciences

2014 Metropolitan Autonomous University. Advisor: Max Fernández de Castro

2012 IHPST-University Paris 1. Advisors: Marco Panza, Hourya Benis-Sinaceur

Teaching and employment

2023– Researcher, Junior Star Fellow, Institute of Philosophy of the Czech Academy of Sciences.

2023 Researcher, Faculty of Philosophy, University of Seville, I+D+i programme. Position not accepted.

2020–22 Postdoctoral Fellow, Institute of Philosophy of the Czech Academy of Sciences.

2018–20 Postdoctoral Fellow, Faculty of Sciences, UNAM, Mexico. Advisors: Carmen Martínez Adame Isais and Carlos Álvarez Jiménez.

2015–17 Professor, *Philosophy of Science*, *General Epistemology*, *Epistemology of Natural Sciences*, BPhil, UAEMex, Mexico.

2012–14 Teaching Assistant, *Logic I*, *Logic II*, *Extensions and Applications of Logic* (Professor: María Manzano), BPhil, USAL, Spain.

2009 Assistant (Professor: Nelson Arteaga Botello), Faculty of Political and Social Sciences, UAEMex, Mexico.

Books

Gedanken, 1799–1803 und *Allerlei mathematische Gedanken* (co-editor with Christian Tapp; transcription with Daniel Kadlec, Klára Zelinková and Steve Russ). Bernard Bolzano–Gesamtausgabe, Vol. IIB 1/1 and IIB 1/2, Frommann-Holzboog, Stuttgart-Bad Cannstatt (in preparation; to be published in 2027 and 2028: https://www.frommann-holzboog.de/editionen/20/202/2022/202200111?lang=de).

Bernard Bolzano's Mathematical Work on Context (editor). Trends in the History of Science. Birkhäuser (in preparation; to be published in late 2027).

Bolzano's notes as a student and teacher of mathematics (editor; transcription with Klára Zelinková, Daniel Kadlec, Babeta Jurámiková and Davide Crippa). Beiträge zur Bolzano-Forschung, Baden-Baden, Academia (in preparation; to be published in 2028).

Irrationality, transcendence and the circle-squaring problem. An annotated translation of J. H. Lambert's Vorläufige Kenntnisse *and* Mémoire (with Eduardo Dorrego López). Foreword by José Ferreirós. 2nd edition. Springer, Cham, 2024.

Matematické dílo Bernarda Bolzana ve světle jeho rukopisů. Translations by Alena Šolcová, Kateřina Trlifajová and Jakub Šolc, Nakladatelství Filosofia, Praha, 2023.

Irrationality, transcendence and the circle-squaring problem. An annotated translation of J. H. Lambert's Vorläufige Kenntnisse *and* Mémoire (with Eduardo Dorrego López). Foreword by José Ferreirós. Springer, Cham, 2023.

Dilucidando π. Irracionalidad, trascendencia y cuadratura del círculo en J. H. Lambert (1728-1777) (with Eduardo Dorrego López), Preface by José Ferreirós. College Publications, Milton Keynes, 2021.

Articles and chapters (selection)

"Bolzano's mathematical legacy reconsidered". *La Matematica*, 2026.

"Continuity and Change in Astronomy in the Czech Lands at the Turn of the 19th Century" (with Petra Hyklová). *Studia Historiae Scientiarum* 25, 2026.

"The history behind the *Bolzano-Gesamtbibliographie 1804–1999* and the guidelines for its use". *Theoria* 90(3), 2024, 257–354.

"Bolzano on Bolzano: A hitherto unknown announcement of Bolzano's *Beyträge*". *History and Philosophy of Logic* 44(4), 2023, 442–458.

"La reforma de la geometría propuesta por Bolzano en 1804" (with Davide Crippa). In: José Ferreirós and María de Paz (Eds.), *La génesis de la geometría*, Plaza y Valdés, Madrid, 2023, 303–324.

"Bolzano's Theory of *meßbare Zahlen*: Insights and Uncertainties Regarding the Number Continuum". In: Bharath Sriraman (Ed.), *Handbook of the History and Philosophy of Mathematical Practice*. Springer, Cham, 2022, 1–38 (2024: 1595–1632).

"The 1804 examination for the chair of elementary mathematics at the University of Prague" (with Davide Crippa), *Historia Mathematica* 57, 2021, 24–54.e18.

"Continuity between Cauchy and Bolzano: Issues of antecedents and priority" (with Jacques Bair, Piotr Błaszczyk, Peter Heinig, Vladimir Kanovei and Mikhail G. Katz), *British Journal for the History of Mathematics* 35(3), 2020, 207–224.

"The notion of variable quantities ω in Bolzano's early works" (with Carmen Martínez Adame), *Historia Mathematica* 50, 2020, 25–49.

"The notion of natural numbers among Germanic mathematicians during the second half of the 18th century", *RBHM* 19(37), 2019, 1–23.

Research projects

"Normalisation and Emergence: Rethinking the Dynamics of Mathematics. The case of Prague in the First Half of the 19th Century" (PragMatika). Principal Investigator. Czech Science Foundation Junior Star grant, Czech Republic, 1/1/2023 to 31/12/2027. www.prag-matika.com

"Matematización y cambio conceptual." Principal Investigators: Carlos Álvarez Jiménez and Vincent Jullien. Mexico and France, 1/1/2019 to 31/12/2022.

"Mathematics in the Czech lands: from the Jesuit teaching to Bernard Bolzano." Principal Investigator: Davide Crippa. Czech Republic, 1/5/2019 to 31/12/2021.

"La comprensión matemática." Principal Investigator: Carmen Martínez Adame Isais. Mexico, 2018.

"La Génesis del Conocimiento Matemático: Cognición, Historia, Prácticas." Principal Investigator: José Ferreirós. Spain, 01/09/2015 to 31/12/2018.

"Acerca da Elucidação do Conceito de Número: Lógica, Teoria de Conjuntos e Prática Matemática." Principal Investigators: José Ferreirós and Abel Lassalle Casanave. Brazil, 2013.

Research groups

Historia y Filosofía de las Ciencias Físicas y Matemáticas. Principal Investigator: José Ferreirós. University of Seville (http://grupo.us.es/hum717/Index.html).

Conference presentations

2026

"The impact of mathematical lectures at the University of Prague in the late 18th century", Workshop Deconstructing the Front and Back of Mathematics: How Educational Practices Produce Mathematical Knowledge?, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach.

"Bolzano's early mathematical notebooks", Bolzano in Prague conference, Institute of Philosophy of the Czech Academy of Sciences, Praha.

"La obra matemática de Bernard Bolzano puesta en contexto". International seminar UAEMéx, Toluca.

2025

"Una introducción a la filosofía de las prácticas matemáticas" (2 talks), International seminar DIDEPA/UAEMéx, Toluca.

"Old terms within new mathematical practices at the turn of the 19th century" (Invited talk), Workshop Mathematics and Language: A historical Perspective, Brno.

"PragMatika" (Invited talk), StemBach Series of Lectures on the History and Philosophy of Science, A Coruña.

"De los manuscritos a la ciudad: repensando las dinámicas de las matemáticas" (Invited talk), Conference organised by the research group GIR-SCCE/USAL, Salamanca.

"Some notes by Bolzano on space and time" (Invited talk), Workshop Time, mathematics and mechanics, Sevilla.

2024

"The history behind the *Bolzano-Gesamtbibliographie 1804–1999* and the guidelines for its use", 11th Conference of the European Society for the History of Science, Barcelona.

"A marginal note on practical mathematics in Prague at the end of the 18th century", 5th Francomexican Advanced Seminar in the History and Philosophy of Science, Paris.

"Repensando las dinámicas de las matemáticas", 1er Coloquio de Filosofía de la Matemática. Edición homenaje a la distancia al Dr. Elías Fuentes Guillén, Toluca.

2023

"Filosofía de las prácticas matemáticas y preservación del patrimonio cultural" (Invited talk), Coloquio de Tutores del Posgrado en Filosofía de la Ciencia, Mexico City.

"La historia de un procedimiento matemático inválido pero correcto a principios del siglo XIX", ¿Qué se demuestra, y cómo se demuestra (lo que se puede demostrar) en matemáticas?, Mexico City.

2022

"A hitherto unknown text by Bolzano on his *Beyträge*" (Plenary talk), Czech Gathering of Logicians, Praha.

"La reforma de la geometría propuesta por Bolzano en 1804" (Invited talk), Seminar of History and Philosophy of Sciences, Seville.

"On Limits and Values: their Concepts and Expressions" (with Steve Russ), BSHM conference The History of Mathematical Analysis, Birkbeck.

"Bolzano's Early Research on Elementary Geometry" (with Davide Crippa), Workshop "The genesis of Geometry", Seville.

2021

"The 1804 examination for the chair of Elementary Mathematics at Prague University" (with Davide Crippa), Seminar on the History and Didactics of Mathematics, Brno.

"The tensions underlying Bolzano's *Grössenlehre*", Joint BSHM - CSHPM/SCHPM Conference, St Andrews.

"A recently discovered text by Bolzano", 26th International Congress of History of Science and Technology, Praha.

2020

"'Give me a lever': Bolzano and the practice of applied mathematics in Prague at the beginning of the 19th century" (with Davide Crippa and Jan Makovský), 5th International Meeting of the APMP, Zürich.

2019

"La transición del continuo dinámico al continuo estático", 3rd Seminar on the Philosophy of Mathematics, Mexico City.

"On Bolzano's early rejection of infinitesimals", 16th CLMPST, Praha.

"Bolzano's 1804 examination: mathematics and mathematical teaching in early 19th century Bohemia" (with Davide Crippa and Jan Makovský), 16th CLMPST, Praha.

"The notion of quantities ω in the early works of Bolzano", 3rd Franco-Mexican Advanced Seminar in the History and Philosophy of Science, Paris.

"La dislocación de la teoría de Bolzano: la interpretación Weierstrassiana que nos fue heredada", 2nd Seminar on the Philosophy of Mathematics, Mexico City.

2018

"Conflicting mathematical objects c. 1800", 29th Novembertagung on the History of Mathematics, Seville.

"Bolzano's early mathematical concepts: Old terms within new practices?" (Lecture; chair: Steve Russ), Praha.

"Bolzano's early conception of mathematics", Colloquium "What are mathematics?", Mexico City.

"El desarrollo de la teoría conjuntista cantoriana", 4th Discrete Mathematics Regional Colloquium, Toluca.

"La noción premoderna de número de Bernard Bolzano", 1st Congress of History and Philosophy of Formal Sciences, Mexico City.

2017

"The Germanic route from negative quantities to natural numbers", 4th International Meeting of the APMP, Salvador da Bahia.

"La ciencia de la forma de las cantidades", 1st Seminar on the Philosophy of Mathematics, Toluca.

2016

"Sobre las relaciones y enfrentamientos entre geómetras alemanes y franceses a inicios del siglo XIX", 6th Seville Workshop on Philosophy of Mathematics, Seville.

2015

"'Bienvenue, Monsieur Brejnev'. Weierstrass or the dilemma of revolutionaries", 3rd International Meeting of the APMP, Paris.

2014

"Some remarks about Bolzano's mathematical sources (1804-1817)" (Short Talk), International Symposium on the Work of Bernard Bolzano, Praha.

2013

"Bolzano's 'Rein analytischer Beweis...' reconsidered" (with José Ferreirós), 2nd International Meeting of the APMP, Urbana-Champaign.

2012

"Los métodos iniciales en la teoría de conjuntos cantoriana", 2nd Joint Meeting RSME - SMM, Torremolinos.

Organisation of scientific events

2026

"Bolzano's work in mathematics and related topics". Bolzano in Prague conference. Organiser. Institute of Philosophy of the Czech Academy of Sciences, Praha.

2025

"Bolzano's time, life and work". Bolzano in Prague conference. Organiser. Institute of Philosophy of the Czech Academy of Sciences, Praha.

6th Seminar on the Philosophy and History of Mathematics. Co-organiser with Davide Crippa. Institute of Philosophy of the Czech Academy of Sciences, Praha.

2024

"Bernard Bolzano, the polymath". Bolzano in Prague conference. Organiser. Institute of Philosophy of the Czech Academy of Sciences, Praha.

5th Seminar on the Philosophy and History of Mathematics. Organiser. Institute of Philosophy of the Czech Academy of Sciences, Praha.

2023

Virtue, Happiness and Mathematics in the Life of Prague in the Early Nineteenth Century. PragMatika Workshop. Organiser. Institute of Philosophy of the Czech Academy of Sciences, Praha.

2022

4th Seminar on the Philosophy and History of Mathematics. Organiser. Institute of Philosophy of the Czech Academy of Sciences, Praha.

Lecture by Steve Russ (University of Warwick), "Feeling for a Context: Bernard Bolzano and his Contexts", Institute of Philosophy of the Czech Academy of Sciences, Praha.

2021

Symposium "Real Numbers in Transition: aspects of the 18th and 19th centuries", Joint BSHM - CSHPM/SCHPM Conference. Co-organiser with Eduardo Dorrego López. University of St Andrews, St Andrews.

2019

3rd Seminar on the Philosophy and History of Mathematics. Organiser. UNAM, Mexico City.

2nd Seminar on the Philosophy and History of Mathematics. Organiser. UNAM, Mexico City.

2018

29th Novembertagung: History of Mathematical Concepts and Conceptual History of Mathematics. Member of the organising committee. US / IMUS, Seville.

2017

1st Seminar on the Philosophy and History of Mathematics. Organiser. UAEMex, Toluca.

Grants and awards

Three-day homage at the Faculty of Humanities of the UAEMéx: "1st Colloquium on the Philosophy of Mathematics. Homage to Dr. Elías Fuentes Guillén" (3rd to 5th December 2024).

Selected by the Czech Science Foundation (Grantová agentura České republiky) as one of 30 leading scientific figures whose congratulations were distributed on the occasion of its 30th anniversary in 2023-24 (https://prag-matika.com/news/gacr-anniversary/).

"National Researcher Level I", SNI-CONACYT, Mexico, 2023–27.

"National Researcher Candidate", SNI-CONACYT, Mexico, 2021–22.

Funding for young scholars organising a symposium at the Joint BSHM - CSHPM/SCHPM Conference, International Commission for the History of Mathematics, July 2021 (not implemented).

Josef Dobrovský Fellowship for short-term study stays of foreign researchers, Institute of Philosophy of the Czech Academy of Sciences, May to June 2018.

Extraordinary Doctorate Award for the best PhD thesis (Philosophy), 2016–17 academic year, University of Salamanca, December 2017.

Honorary Assistant (Professor: José Ferreirós), Department of Philosophy and Logic and Philosophy of Science, University of Seville, 2013–14 academic course.

Short Term Mobility Funding for FPU beneficiaries (IHPST-Université Paris 1), Ministry of Education, Spain, February to June 2012.

Training Programme for Academic Staff Scholarship (FPU), PhD, Ministry of Education, Spain, October 2010 to September 2014.

Mobility Scholarship for Master students (Universidade de Santiago de Compostela), Ministry of Education, Spain, 2009/2010.

Santander Bank Grant for Iberoamerican Students, Master's degree, Santander Bank, Spain, October 2009 to July 2010.

FOCAEM Grant, CONACULTA, Mexico, January to December 2007.

Thesis advisor

The 18th and 19th century star catalogues in context and in relation to contemporary astronomy. Allison Baláž. Consultant: Petra Hyklová. PhD, History and Philosophy of Science and Technology, University of West Bohemia, Czech Republic, in progress.

Los orígenes de la noción de evidencia en el marco de la filosofía de la ciencia del siglo XX. Axel Gómez Sánchez. Co-advisor: Alberto Saladino García. BPhil, UAEMex, Mexico, 2022.

Examination board

El problema de los Datos *de Euclides como la puerta de entrada al estudio del análisis geométrico de los antiguos*. Germán Cárdenas Leroy. Advisor: Carlos Álvarez Jiménez. PhD, Philosophy of Science, UNAM, Mexico, in progress.

Time in Mathematics: A Historical-Philosophical Analysis. Pablo Caballero Fernández. Advisor: José Ferreirós. PhD, Philosophy, Universidad de Sevilla, Spain, 2026.

Los orígenes del conocimiento geométrico: una aproximación cognitiva, epistemológica y arqueo-histórica orientada al continente Euroasiático. Manuel Jesús García Pérez. Advisor: José Ferreirós. PhD, Philosophy, Universidad de Sevilla, Spain, 2023.

Acción Libre y Causación de la Acción. Miguel Ángel Rotter Zimbrón. Advisor: Santiago Echeverri. MPhil, Philosophy of Science, UNAM, Mexico, 2022.

La crítica de Berkeley al cálculo de Newton. Mauricio Algalán Meneses. Advisor: Cristian Alejandro Gutiérrez Ramírez. MPhil, Philosophy of Science, UNAM, Mexico, 2019.

El debate de la cuerda vibrante y el concepto de función matemática en el Siglo XVIII. Julio Martín Arriaga Romero. Advisor: Carmen Martínez Adame Isais. MPhil, Philosophy of Science, UNAM, Mexico, 2017.

Associations

Member of the Association for the Philosophy of Mathematical Practice (APMP).

Member of the Internationale Bernard Bolzano-Gesellschaft (IBBG).

Other professional activities

Founder, in collaboration with the Library of the Institute of Philosophy of the Czech Academy of Sciences, of the Bernard Bolzano Collection of publications by, about

and related to Bolzano, established at said library in Prague as part of the Junior Star project PragMatika (GA ČR 23-06540M). Current holdings: c. 350 items.

Founder and responsible for the Bolzano Digital Archive, built as part of the Junior Star project PragMatika (GA ČR 23-06540M). The Archive comprises Bolzano's Nachlass preserved by the Museum of Czech Literature (about 36,000 pages) and by the Austrian National library (about 11,500 pages).

Developer and responsible for the website BernardBolzano.org (with Steve Russ).

Tutor, MPhil, Philosophy of Science, UNAM, Mexico, from 2023.

Responsible for the website of the APMP from October 2012 to December 2015.

Referee for several journals and publishing houses.