

# Latinxs and Hispanics in Mathematical Sciences



## Daniela Ferrero

Daniela Ferrero earned a degree in Computer Engineering from Universidad de la República (Montevideo, Uruguay) and a doctorate in Applied Mathematics and Telematics from Universitat Politècnica de Catalunya (Barcelona, Spain). Upon graduation, she worked as a postdoctoral researcher at the Institute of Information Sciences at Academia Sinica (Taipei, Taiwan), until she joined the faculty of the Department of Mathematics at Texas State University, where she is now Associate Professor.

Her research interests include graph theory, combinatorics, and linear algebra, applied to a variety of problems in science and engineering. Her early research focused on connectivity, fault-tolerance, and routing protocols for interconnection network models. She also proposed asymptotic solutions to the degree/diameter problem obtained by the iterated application of graph operators, which resulted in scalable network models with optimal fault-tolerance properties. In particular, she is recognized for her ground-breaking work on bus network models based on hyperdigraphs, subsequently used in the design of a supercomputer. Her research focus then shifted to graph propagation processes. In addition to results about propagation time, she established a relationship between power domination (electrical networks) and zero forcing (linear algebra and quantum control) that enabled her, and others, to study both problems by combining results and tools from seemingly disconnected disciplines. She extended that relationship to other graph propagation processes, and her goal is to define a uniform framework for their study.

Additionally, she has served as an associate editor for *The American Mathematical Monthly*, and as an organizer or member of the scientific committee of several international conferences. Supporting women, minorities, and first generation college students is a priority in her outreach activities. At Texas State University, with support from Mathematics Association of America (MAA)-Tensor and MAA-Tensor Summa grants, she leads the program Women Doing Math, aimed at promoting the contribution of women to mathematics, and a semester-long research experience for undergraduates from underrepresented minorities.

Ferrero is fortunate to have been mentored by great mathematicians; too many to name. She values the positive influence of her co-authors in her career, and she is grateful for the opportunities she had to collaborate through REUF, on her visits to DIMACS, AIM, ICERM and IPAM, and as faculty at the Graduate Research Workshop in Combinatorics 2017.

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Lathisms was founded in 2016 in order to showcase the contributions of Latinx and Hispanic mathematicians during Hispanic Heritage Month, which is celebrated in the United States from September 15 and October 15 every year. During this time, we feature/reveal a prominent Latinx/Hispanic mathematician daily. See all the featured mathematical scientists at [LATHISMS.ORG](http://LATHISMS.ORG).

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