

Latinxs and Hispanics in Mathematical Sciences



Photo courtesy of MIT

"Hispanic Heritage Month is an opportunity to celebrate the richness and diversity of Hispanic cultures and the many paths that can lead to science and mathematics. Growing up in Spain and later building my scientific career in the United States has made me more conscious of the value of Hispanic representation in academia. There are many inspiring Hispanic role models across the mathematical sciences, and I value initiatives that make their contributions visible and help younger students see that there is no single background or trajectory required to build a meaningful career in mathematics and science."

Dr. Juncal Arbelaiz

Postdoctoral Fellow
Princeton University

Juncal Arbelaiz is an applied mathematician from the Basque Country. She studied engineering in Spain before moving to the United States to pursue a Ph.D. in Applied Mathematics at MIT. Following her undergraduate studies, she received Spain's Premio Nacional Fin de Carrera in recognition of her academic achievements. After completing her Ph.D., Arbelaiz joined Princeton University, where she has continued to develop an interdisciplinary research program spanning mathematics, engineering, and neuroscience. She was selected as a Schmidt Science Fellow, an international fellowship supporting scientists who pursue research across disciplinary boundaries, and has received additional recognition for her work in applied mathematics and control.

Juncal Arbelaiz's research uses ideas from control theory, dynamical systems, and machine learning to understand how complex systems can be learned, influenced, and controlled. A recurring theme in her work is that mathematics can do more than describe a system: it can help determine how to interact with it, which measurements or perturbations are most informative, and how desired behaviors can be generated through feedback.

One direction of her research focuses on active learning and experimental design for dynamical systems. She develops methods for selecting informative interventions that allow unknown dynamics to be learned efficiently, rather than relying on passively collected data. She is increasingly bringing these ideas to neuroscience, where carefully chosen perturbations can help reveal the causal structure and dynamics of neural systems. Her work seeks to combine mathematical models, learning algorithms, and closed-loop experimentation to make scientific discovery more efficient.

Teaching and mentoring have also been important components of Arbelaiz's mathematical career. During her Ph.D. at MIT, she served as a teaching assistant for Gilbert Strang's linear algebra course. She has also mentored students from Spain interested in pursuing doctoral studies abroad, helping them understand and navigate Ph.D. application processes that can be unfamiliar to students trained outside the United States.

Arbelaiz has been committed to improving representation and community in mathematics and STEM. As an MIT graduate student, she helped revitalize the student-led MIT Women in Mathematics group, creating opportunities for peer support and community building, and she also served on the executive board of Graduate Women at MIT. She serves on the advisory board of Lost Women of Science, an initiative dedicated to recovering and sharing the stories of women whose scientific contributions have historically been overlooked.

Together, these activities reflect her commitment not only to advancing mathematical research, but also to making scientific communities more welcoming, visible, and accessible to the next generation.

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.

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