

# Latinxs and Hispanics in Mathematical Sciences



## Cynthia Flores

Cynthia Flores is an American Latina mathematician whose parents migrated from El Salvador. She grew up in Los Angeles, CA, in the Pico-Union community, working at local outdoor swap meets every weekend. Inspired by her hard-working parents and sister, she received her BS and MS in Mathematics from California State University Northridge while receiving support and mentorship from the PUMP Program (Preparing Undergraduates through Mentoring for Ph.D.s). Despite facing several challenges, in 2014 she completed a Ph.D. in mathematics from the University of California Santa Barbara in dispersive partial differential equations. She then joined the faculty at California State University Channel Islands as an Assistant Professor where she enjoys teaching ordinary and partial differential equations, supervising undergraduate research, expanding her research in well-posedness of PDEs, collaborating with community partners in data science projects, and working towards work-life balance along with her husband and children. She has been inspired by several mentors and advisors and aims to continue their shared work and legacy in creating opportunities for diversity within the mathematics community.

*“Hispanic Heritage Month is a time for recognizing and celebrating the contributions of American Latinos.*

*Bringing this awareness and appreciation to everyone, it is a time to strengthen what U.S. American diversity really means to me. It plays a central role in inspiring future generations to pursue their dreams in STEM, the arts, sports, medicine, and community building.”*

Cynthia Flores’s field of interest lies at the intersection of partial differential equations, harmonic analysis, and mathematical physics. Specifically, Flores is interested in the study of dispersive KdV-like and Peridynamic equations, and their corresponding well-posedness problems. The Benjamin-Ono equation is of particular interest for modeling long internal waves and presents challenges due to the presence of the nonlocal operator (and singular integral operator), the Hilbert transform, appearing in the dispersive term. Her Ph.D. Dissertation presents results on decay properties of solutions to the IVP of the Benjamin-Ono equation in weighted Sobolev spaces. Recently, Flores studied control and stability problems related to equations including the fifth order KdV equation, the Benjamin-Ono equation and its dispersion-generalized version, all posed on a periodic domain in the spatial variable. Her work focused specifically in determining if it is possible to construct a control input to apply to a system, with prescribed initial and final states, such that the solution trajectory is identical to the given conditions at the initial and final times. She also investigated the related asymptotic (in time) stability properties of the corresponding solutions if a control input is found. Recent results related to these questions can be found at <https://arxiv.org/abs/1706.04798> and <https://arxiv.org/abs/1709.10224>.

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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).

*Thanks to the American Mathematical Society and the Mathematical Association of America for support of Lathisms.*

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