

Latinxs and Hispanics in Mathematical Sciences



Photo courtesy of Dr. Josef Sifuentes

Dr. Josef Sifuentes

Associate Professor

University of Texas Rio Grande Valley

Dr. Josef Sifuentes is an Associate Professor of Mathematics at the University of Texas Rio Grande Valley and a recent recipient of the University of Texas System Regents' Outstanding Teaching Award. He attended Rice University, where he majored in Mathematics, Computational and Applied Mathematics, and Art before continuing at Rice to earn his Ph.D. in Computational and Applied Mathematics.

Dr. Josef Sifuentes's research focuses on numerical algorithms in applied mathematics, particularly Krylov subspace methods in numerical linear algebra. He is especially drawn to the elegance of iterative methods: relatively simple mathematical ideas that, when carefully constructed, can solve extraordinarily large and complex computational problems. His published work has applied these ideas to a diverse range of problems, including the stability of the GMRES algorithm, approaches to preconditioning, wave-scattering problems, optimal control, and the high-resolution computation of principal values.

A central theme of Dr. Sifuentes's teaching and mentoring is his desire to include as many students as possible in experiencing the beauty and creativity of mathematics. He has pursued this goal through highly engaging courses, undergraduate research mentorship, and directing programs designed to bring students into the broader mathematical community. His Real Analysis course uses a flipped format, with lecture videos publicly available on YouTube that have been viewed more than 30,000 times. Class time is devoted to students working collaboratively on carefully scaffolded problem sets, creating an environment in which more students actively engage with a subject that many initially find intimidating. He has also developed a course in mathematical software that introduces students to computational mathematics through in-class coding assignments and homework sets that range from modeling the market share of major chorizo manufacturers, to prime number algorithms, to using Newton's method to create fractal artwork. In 2021, his contributions to teaching were recognized with the University of Texas System Regents' Outstanding Teaching Award.

At the University of Texas Rio Grande Valley (UTRGV), where more than 90% of students identify as Hispanic, Dr. Sifuentes has served as director of the Math Pathways Program, which provides undergraduate research experiences and helps students build pathways toward graduate study in mathematics. He has also served as co-director of the NSF-LSAMP Summer Research Academy and has accompanied numerous undergraduate students to mathematics conferences, helping introduce them to researchers, opportunities, and the wider mathematical community. Across these efforts, his goal is not simply to teach students mathematics, but to help them recognize that they have a place within the mathematical community and that they, too, belong there.

"To me, Hispanic Heritage Month is an opportunity to recognize the deep contributions Hispanic Americans have made to the progress of this country—across the sciences, arts, culture, and politics, and in every facet of American life. Too often, these contributions have been overlooked in our textbooks and classrooms, depriving our community of seeing its rightful place in our national tapestry. Hispanic Heritage Month helps correct that omission. It is a time to celebrate our community's accomplishments, to recognize our place in the American story, and to ensure that the next generation can see themselves in that story."

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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