Latinxs and Hispanics in Mathematical Sciences

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Santiago was born in Bogotá, Colombia and is the oldest of three siblings. During his undergraduate he discovered combinatorics in an introductory course by Tristram Bogart and instantly fell in love with the underlying methodology of unearthing the treasures of a mathematical object by visualizing it from different perspectives. He further had the great fortune of being able to continue his journey in combinatorics by joining the vivid and strong combinatorial Colombian community. Through that community he was mentored or encouraged by many mathematicians whose work continues to be an inspiration for him, such as Carolina Benedetti, Pamela Harris, Tristram Bogart, Nantel Bergeron, Federico Ardila, Alejandro Morales, and Rafael González. Santiago received his bachelor and master’s degree from the Universidad de los Andes and is now pursuing a PhD in Combinatorics and Optimization at the University of Waterloo.

Santiago’s research is mainly focused on symmetric functions and their interactions with representation theory and geometry. As part of an ongoing project with Oliver Pechenik, he has been studying the shifted plactic monoid, an algebraic device that sheds light on the projective representation theory of the symmetric group and the cohomology of isotropic Grassmannians. Inspired by the work of Luis Serrano, he is exploring a categorical characterization of the shifted plactic monoid and using it to extend classical results regarding the structure coefficients of P-Schur functions. Santiago has also studied problems related to the Hopf algebraic structure of ordinary symmetric functions as part of his master thesis with Carolina Benedetti and Mario Sanchez; and a problem in the intersection of number theory and combinatorics, the distribution of lattice points in arbitrary dimension, with Pamela Harris and Carolina Benedetti.

As a teacher, Santiago served as teaching assistant for the tropical geometry course of the combinatorial conference “Días de Combinatoria 2019”, as well as for multiple courses encompassing Calculus, Linear Algebra, Introduction to Combinatorics, among others, in the Universidad de los Andes and the University of Waterloo.

“Hispanic Heritage Month and the broader work of the Lathisms’ team is a testimony to me of the importance of building communities in and outside of mathematics, of conceiving personal growth in relation to those communities, and of helping to create an environment where one does the best for the development and growth of all involved.”

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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