
Address

Auburn University
221 Parker Hall
Auburn, AL 36849-5310, USA

Personal

Citizenship: U.S.A.

Languages

Fluent: English and Spanish (native language).

Education

May 2017 **Ph.D., Applied Mathematics**, Iowa State University, Ames, IA, USA.

Advisor: Dr. Leslie Hogben.

Dissertation title: *Principal rank characteristic sequences*.

May 2011 **B.S., Pure Mathematics**, University of Puerto Rico–Mayagüez, Mayagüez, PR, USA.

Appointments

<i>Dates</i>	<i>Title</i>	<i>School</i>	<i>Location</i>
Aug. 2017–present	Visiting Assistant Professor	Auburn University	Auburn, AL, USA
Aug. 2011–Dec. 2016	Graduate Teaching Assistant	Iowa State University	Ames, IA, USA

Honors

Spring 2017 **Aggie Ho Research Award**.

This award recognizes research excellence, and it was awarded to one of the 80 graduate students in the Dept. of Mathematics at Iowa State University.

Research Interests

Linear algebra, spectral graph theory and combinatorics.

Select Collaborative Research Experiences

July 17–29, 2016 **Rocky Mountain-Great Plains Graduate Research Workshop in Combinatorics (GRWC)**, hosted by University of Wyoming.

July 13–17, 2015 **Focused Research Group**, hosted by Iowa State University.
Besides Xavier, the other participants were 7 faculty members and 1 other graduate student.

REU Participation (as an Undergraduate)

Dates	REU	School	Mentors
Summer 2010	ISU Math/Stat REU	Iowa State University	Leslie Hogben & Minerva Catral
Summer 2009	MTBI	Arizona State University	Christopher Kribs-Zaleta

Peer-Reviewed Journal Publications

Submitted for publication

- [10] S. M. Fallat, **X. Martínez-Rivera**, On the almost-principal minors of a symmetric matrix, *submitted*. [arxiv.org/abs/1807.07448]

Published/in press/to appear

- [9] A. Abiad, B. Brimkov, **X. Martínez-Rivera**, S. O, J. Zhang, Spectral bounds for the connectivity of regular graphs with given order, *Electronic Journal of Linear Algebra* **34** (2018), 428–443. [doi.org/10.13001/1081-3810.3675]
- [8] S. M. Fallat, **X. Martínez-Rivera**, The quasi principal rank characteristic sequence, *Linear Algebra and its Applications* **548** (2018), 42–56. [doi.org/10.1016/j.laa.2018.02.024]
- [7] **X. Martínez-Rivera**, The signed enhanced principal rank characteristic sequence, *Linear and Multilinear Algebra*, **66**(7) (2018), 1484–1503. [dx.doi.org/10.1080/03081087.2017.1363149]
- [6] A. Abiad, B. Brimkov, A. Erey, L. Leshock, **X. Martínez-Rivera**, S. O, S.-Y. Song, J. Williford, On the Wiener index, distance cospectrality and transmission regular graphs, *Discrete Applied Mathematics* **230** (2017), 1–10. [doi.org/10.1016/j.dam.2017.07.010]
- [5] **X. Martínez-Rivera**, The enhanced principal rank characteristic sequence over a field of characteristic 2, *Electronic Journal of Linear Algebra* **32** (2017), 273–290. [doi.org/10.13001/1081-3810.3389]
- [4] S. Butler, M. Catral, H. T. Hall, L. Hogben, **X. Martínez-Rivera**, B. Shader, P. van den Driessche, The enhanced principal rank characteristic sequence for Hermitian matrices, *Electronic Journal of Linear Algebra* **32** (2017), 58–75. [dx.doi.org/10.13001/1081-3810.3249]
- [3] **X. Martínez-Rivera**, Classification of families of pr- and epr-sequences, *Linear and Multilinear Algebra*, **65**(8) (2017), 1581–1599. [dx.doi.org/10.1080/03081087.2016.1248345]
- [2] M. Archer, M. Catral, C. Erickson, R. Haber, L. Hogben, **X. Martínez-Rivera**, A. Ochoa, Potentially eventually exponentially positive sign patterns, *Involve* **6**(3) (2013), 261–271. [dx.doi.org/10.2140/involve.2013.6.261]
- [1] M. Archer, M. Catral, C. Erickson, R. Haber, L. Hogben, **X. Martínez-Rivera**, A. Ochoa, Constructions of potentially eventually positive sign patterns with reducible positive part, *Involve* **4**(4) (2011), 405–410. [dx.doi.org/10.2140/involve.2011.4.405]

Technical Reports

- M. Muñoz-Figueroa, **X. Martínez-Rivera**, T. Seaquist, B. Crawford, A. Mubayi, K. Salau, C. Kribs-Zaleta. *Two strain competition: Trypanosoma cruzi*. Written during the Mathematical and Theoretical Biology Institute (MTBI) REU (2009). (See the section above about REU participation.) [mtbi.asu.edu/2009-7]

Invited Talks

- March 2019* **The almost-principal minors and ap-rank of symmetric matrices**, 50th Southeastern International Conference on Combinatorics, Graph Theory and Computing (SEICCGTC) (Special Session on Combinatorial Matrix Theory), Florida Atlantic University, Boca Raton, FL, USA.
- Jan. 2019* **The almost-principal minors and ap-rank of symmetric matrices**, 2019 Joint Mathematics Meetings (AMS Special Session on If You Build It They Will Come: Presentations by Scholars in the National Alliance for Doctoral Studies in the Mathematical Sciences), Baltimore, MD, USA.
- Dec. 2017* **The epr-sequence over a field of characteristic 2**, Matrix Theory Seminar, Georgia State University, Atlanta, GA, USA.
- July 2017* **The signed epr-sequence**, 21st Conference of the International Linear Algebra Society (ILAS) (Mini-symposium on Combinatorial Matrix Theory), Iowa State University, Ames, IA, USA.
- July 2017* **The sepr-sequence of a Hermitian matrix**, Special Western Canada Linear Algebra Meeting (WCLAM), Banff International Research Station (BIRS), Banff, Alberta, Canada.
- June 2017* **Principal rank characteristic sequences**, Linear Algebra Seminar, Auburn University, Auburn, AL, USA.
- Oct. 2016* **The epr-sequence over a field of characteristic 2**, AMS Fall Central Sectional Meeting (Special Session on Combinatorial Matrix Theory), University of St. Thomas–Minnesota, Minneapolis, MN, USA.
- April 2016* **Classification of families of pr- and epr-sequences**, AMS Spring Central Sectional Meeting (Special Session on Matrix and Operator Theory), North Dakota State University, Fargo, ND, USA.
- March 2016* **Classification of families of pr- and epr-sequences**, 47th Southeastern International Conference on Combinatorics, Graph Theory and Computing (SEICCGTC) (Special Session on Combinatorial Matrix Theory, in honor of LeRoy Beasley), Florida Atlantic University, Boca Raton, FL, USA.

Contributed Talks

- May 2018* **The qpr-sequence**, Western Canada Linear Algebra Meeting (WCLAM), Washington State University, Pullman, WA, USA.
- March 2018* **The quasi principal rank characteristic sequence**, XXXIII Seminario Interuniversitario de Investigación en Ciencias Matemáticas (SIDIM), University of Puerto Rico–Río Piedras, San Juan, PR, USA.

- March 2017* **The signed enhanced principal rank characteristic sequence**, XXXII Seminario Interuniversitario de Investigación en Ciencias Matemáticas (SIDIM), University of Puerto Rico–Ponce, Ponce, PR, USA.
- Jan. 2017* **The epr-sequence over a field of characteristic 2**, 2017 Joint Mathematics Meetings, Atlanta, GA, USA.
- July 2016* **Classification of families of pr- and epr-sequences**, 20th Conference of the International Linear Algebra Society (ILAS), Katholieke Universiteit (KU) Leuven, Leuven, Belgium.
- May 2016* **Classification of families of pr- and epr-sequences**, Western Canada Linear Algebra Meeting (WCLAM), University of Manitoba, Winnipeg, Manitoba, Canada.
- Oct. 2015* **The principal rank characteristic sequence and the enhanced principal rank characteristic sequence**, SIAM Conference on Applied Linear Algebra, Atlanta, GA, USA.
- July 2012* **Classification of potentially eventually exponentially positive sign patterns of small order**, 2012 SIAM Annual Meeting, Minneapolis, MN, USA.

Departmental Talks

- Jan. 2019* **The almost-principal minors and ap-rank of symmetric matrices**, Linear Algebra/Algebra Seminar, Auburn University, Auburn, AL, USA.
- Nov. 2018* **The qpr-sequence**, Linear Algebra/Algebra Seminar, Auburn University, Auburn, AL, USA.
- Sept. 2017* **A new principal rank characteristic sequence**, Linear Algebra/Algebra Seminar, Auburn University, Auburn, AL, USA.
- Oct. 2015* **The principal rank characteristic sequence and the enhanced principal rank characteristic sequence**, SIAM ISU Student Chapter, Iowa State University, Ames, IA, USA.

Posters Presented (as an Undergraduate)

- Oct. 2010* **Classification of potentially eventually exponentially positive sign patterns of small order**, (joint with Rana Haber) 2010 SACNAS National Conference, Anaheim, CA, USA.
- Feb. 2010* **Two strain competition: Trypanosoma cruzi**, NEA Science Day, University of Puerto Rico–Mayagüez, Mayagüez, PR, USA.
- Oct. 2009* **Two strain competition: Trypanosoma cruzi**, 2009 SACNAS National Conference, Dallas, TX, USA.
- Sept. 2009* **Two strain competition: Trypanosoma cruzi**, Ana G. Méndez University System (AGMUS) XX Undergraduate Research Symposium, San Juan, PR, USA.

Other Conferences Attended

- Sept. 2012* **Midwestern Graph Theory (MIGHTY) LIII Conference**, Iowa State University, Ames, IA, USA.
- July 2010* **2010 NSF-CBMS Regional Conference: The Mutually Beneficial Relationship of Matrices and Graphs**, Iowa State University, Ames, IA, USA.
- July 2009* **2009 SIAM Annual Meeting**, Denver, CO, USA.

Travel Grants

- 2017* **AMS Graduate Student Travel Grant**.
Amount: \$500(USD). To support travel expenses to attend the 2017 Joint Mathematics Meetings.

Service

- 2019* **Co-organizer** (with Zhongshan Li), *Special Session on Combinatorial Matrix Theory at the 2019 AMS Spring Southeastern Sectional Meeting*, Auburn University, Auburn, AL, USA.
- Spring 2019* **Organizer**, *Linear Algebra/Algebra Seminar*, Auburn University, Auburn, AL, USA.
- March 26, 2018* **Judge of Poster Session**, *2018 This is Research: Student Symposium*, Auburn University, Auburn, AL, USA.
- July 28, 2017* **Invited Session Chair** (of one session), *Special Western Canada Linear Algebra Meeting (WCLAM)*, Banff International Research Station (BIRS), Banff, Alberta, Canada.
- Jan.–July 2017* **Assistant Conference Director** for the **21st Meeting of the International Linear Algebra Society, ILAS 2017: Connections** (367 participants and 277 talks), Iowa State University, Ames, IA, USA.

Reviewing

- 2017–present* **Mathematical Reviews** (1 paper)

Refereeing

- 2016–present* **Filomat** (1 paper)

Teaching Experience at Auburn University

<i>Role</i>	<i>Semester</i>	<i>Course</i>	<i>Enrollment</i>
Instructor of record	Spring 2019	Math 1610: Calculus I	88
Instructor of record	Fall 2018	Math 2660: Topics in Linear Algebra	23
Instructor of record	Fall 2018	Math 2660: Topics in Linear Algebra	57
Instructor of record	Spring 2018	Math 2660: Topics in Linear Algebra	24
Instructor of record	Fall 2017	Math 1610: Calculus I	20

Average Rating: 5.38/6.00 (based on 176 student responses to the course evaluation surveys)

Teaching Experience at Iowa State University

<i>Role</i>	<i>Semester</i>	<i>Course</i>
Recitation leader	Fall 2016	Math 265: Calculus III
Recitation leader	Spring 2016	Math 265: Calculus III
Recitation leader	Fall 2015	Math 265: Calculus III
Recitation leader	Spring 2015	Math 165: Calculus I
Recitation leader	Fall 2014	Math 165: Calculus I
Recitation leader	Fall 2013	Math 142: Trigonometry & Analytic Geometry
Recitation leader	Fall 2012	Math 151: Calculus for Business & Social Sciences
Lab tutor	Spring 2012	Math 150: Discrete Math for Business & Social Sciences
Grader	Fall 2011	Math 181: Calculus & Math Modeling for the Life Sciences I
Grader	Fall 2011	Math 201: Introduction to Proofs

Pedagogical Training

June 30 – **Pathways to Precalculus (2-day) Workshop**, hosted by Iowa State.
July 1, 2014 Conducted by Dr. Marilyn Carlson (Arizona State University).

Memberships

2011–present **International Linear Algebra Society (ILAS)**
2011–2018 **American Mathematical Society (AMS)**
2012–2018 **Society for Industrial and Applied Mathematics (SIAM)**
2016–present **Mathematical Association of America (MAA)**
2016–2017 **Society for Advancement of Chicanos/Hispanics and Native
Americans in Science (SACNAS)**
2016–2017 **Sigma Xi: The Scientific Research Society** (Associate member)