Luis David Garcia-Puente
Assistant Professor
Department of Mathematics and Statistics
Sam Houston State University

Degrees Earned

Ph. D., Mathematics, Virginia Polytechnic Institute and State University, 2004

B.S., Mathematics, National University of Mexico, 1999

Professional Licensure and Certifications

2009 SAMSI New Researcher fellowship, Statistical and Applied Mathematical Sciences Institute, Research Triangle Park, NC

2005 – 2007, Visiting Assistant Professor, Texas A&M University, College Station, TX

Fall 2004, Postdoctoral Research Fellow, Mathematical Science Research Institute,
 Berkeley, CA

Sum. 2004, Postdoctoral Research Fellow, Department of Mathematics, University of California, Berkeley, CA

Peer-Review Publications and Artistic Performances/Exhibitions

Articles

Algebraic and combinatorial aspects of sandpile monoids on directed graphs (with S. Chapman, R. Garcia, M. Malandro, K. Smith), submitted.

The secant conjecture in the real Schubert calculus (with N. Hein, C. Hillar, A. Martin Del Campo, J. Ruffo, F. Sottile, and Z. Teitler), submitted.

Toric degenerations of Bézier patches (with F. Sottile and C. Zhu), accepted in ACM Transactions on Graphics.

Parameter estimation for Boolean models of biological networks (with E. Dimitrova, F. Hinkelmann, A. S. Jarrah, R. Laubenbacher, B. Stigler, M. Stillman and P. Vera-Licona), Special Issue on Foundations of Formal Reconstruction of Biochemical Networks. Theoretical Computer Science, 412/26, pp. 2816-2826. (2011).

Experimentation at the Frontiers of reality in Schubert calculus (with C. Hillar, A. Martin Del Campo, J. Ruffo, Z. Teitler, S. Johnson and F. Sottile), Gems in Experimental Mathematics, AMS Contemporary Mathematics, 517, 2010, 365-380.

Some geometrical aspects of control points for toric patches (with G. Craciun and F. Sottile), Mathematical Methods for Curves and Surfaces 2008 (M. Daehlen et al. Eds). Lecture Notes in Computer Science 5862, pp. 111-135. Springer, Heidelberg (2010).

Linear precision for parametric patches (with F. Sottile), Advances in Computational Mathematics, 33/2 (2010) pp. 191-214.

Computing the additive structure of indecomposable modules over Dedekind-like rings using Gröbner bases (with M. A. Avino-Diaz), in Journal of Algebra and Its Applications, 6/2 (2007) pp. 291-304.

Sequential dynamical systems over words (with A.S. Jarrah and R. Laubenbacher), in Applied Mathematics and Computation, 174/1 (2006) pp. 500-510.

Algebraic geometry of Bayesian networks (with M. Stillman and B. Sturmfels), in Journal of Symbolic Computation, 39/3-4 (2005) pp. 331-355. Special issue on the occasion of Mega 2003.

Bases de Groebner asociadas a modulos finitos, in Miscelanea Matematica (MMS) 30 (2000), pp. 65—70.

Books

Chapters

Catalog of small trees (with M. Casanellas and S. Sullivant), book chapter in Algebraic Statistics for Computational Biology, (L. Pachter and B. Sturmfels Eds.) Cambridge University Press, (2005) pp. 291-304.

Proceedings

Identifying causal effects with computer algebra (with S. Spielvogel and S. Sullivant), P. Grünwald and P. Spirtes (Editors). Proceedings of the 26th Conference of Uncertainty in Artificial Intelligence (UAI 2010). AUAI Press (2010).

Algebraic Statistics in model selection, in M. Chickering and J. Halpern, editors, Proceedings of the 20th Conference of Uncertainty in Artificial Intelligence, (2004) 177—184.

Artistic Performances/Exhibitions

Research Monographs and Technical Reports

Funded External Grants

Co-PI on NSA Mathematical Sciences Program - Conferences and Special Situations Grant #22050 (2010), $10,000.00

PI on 2007 Norman Hackerman Advanced Research Program (ARP) grant no. 010366-0054-2007, $144,000.00

Peer-Review Presentations/Posters

Work or Professional Experiences

2011 NSF EMSW21-MCTP Longterm Undergraduate Research Experience (LURE) at Sam Houston State University: Research Advisor.

2011 NSF EMSW21-MCTP Pacific Undergraduate Research Experience in Mathematics (PURE Math) at University of Hawaii-Hilo: Course Instructor of a course in Sandpile Groups.

2007 IMA PI Summer Program for Graduate Students on Applicable Algebraic Geometry at Texas A&M University: Assistant Instructor of a course in Computational Algebraic Geometry (with F. Sottile and C. Hillar).

2006 REU/VIGRE Undergraduate Research in Mathematics at Texas A&M University program: Instructor of a course on Algebraic Methods in Computational Biology (with M. Rojas).

2005 REU/VIGRE Undergraduate Research in Mathematics at Texas A&M University program: Instructor of a course on Algebraic Methods in Computational Biology (with M. Rojas and L. Fukshansky).

Fall 2002, University of Genova, Italy: Graduate Research Fellow.

2001 NSF/REU Summer Institute in Mathematics for Undergraduates (SIMU), University of Puerto Rico-Humacao: Teaching Assistant of a course in Computational Algebra (with R. Laubenbacher and R. Garcia).

Major Journals Refereed:

Advances in Applied Mathematics
Applied Mathematics and Computation
Bulletin of Mathematical Biology
Communications in Statistics -Theory and Methods
IEEE/ACM Transactions on Computational Biology and Bioinformatics
Journal of Algebra
Journal of Commutative Algebra
Journal of Symbolic Computation
SIAM Journal of Discrete Mathematics

Other Referee Activities:

Associate Editor for the American Mathematical Monthly
Reviewer for Mathematical Reviews since 2007
Reviewer for Zentralblatt MATH since 2007
Reviewer for the issue on Nonlinear Computational Geometry of the IMA Volumes in Mathematics and its Applications published by Springer-Verlag
Reviewer for the Algebraic Biology 2007 Conference Proceedings

Honors and Awards

2000, Award team MathQuiz2000. Research level contest organized by the Centre de Reccerca Matematica (Barcelona) as part of the celebrations for the World Mathematics Year.

1999, Sotero Prieto Award for the Best Undergraduate Thesis of the Year. Nationwide honor awarded by the Mexican Mathematical Society.

Other Competencies