Sergio Da Silva

Education

2018	Cornell University	PhD in Mathematics
2012	University of Toronto	MSc. in Pure Mathematics
2011	University of Toronto	BSc Honours with high distinction; double specialist in Pure & Applied Mathematics

Academic Positions

2018-2020	University of Manitoba	PIMS Postdoctoral Fellow

Research Interests

Algebraic geometry, algebraic combinatorics, combinatorial algebra, birational geometry, resolution of singularities

Publications

1. Sergio Da Silva, *Strict Bott-Samelson Resolutions of Schubert Varieties*, Experimental Mathematics, Vol. 28 (3), 2019, 313-321.

2. Sergio Da Silva, *On the Gorensteinization of Schubert Varieties via Boundary Divisors*, 2018 , Arxiv submission 1807.05416. (submitted to JACO).

3. D. Barbasch, S. Da Silva, B. Elek and G. Krishnan, *Finite Type Multiple Flag Varieties of Exceptional Groups*, 2017. Arxiv submission 1708.06341 (submitted to Experimental Mathematics).

4. Edward Bierstone, Sergio Da Silva, Pierre Milman and Franklin Vera Pacheco, *Desingularization by Blowings-up Avoiding Simple Normal Crossings*, Proceedings of the AMS, Vol. 142, 2014, 4099-4111.

5. Sergio Da Silva and Kalle Karu, *On Oda's Strong Factorization Conjecture*, Tohoku Mathematical Journal, Vol. 63 Number 2, 2011, 163-182.

Articles in Preparation

6. Sergio Da Silva, *Frobenius Splittings and the Desingularization of Hypersurfaces in Positive Characteristic*.

7. Jaydeep Chipalkatti and Sergio Da Silva, *Pascal Morphisms and the Ulyanov Configuration Space*.

8. Sergio Da Silva, YG Liang and Yang Zhang, *The Tensor Rank Problem over the Quaternions.*

9. Sergio Da Silva, *A Cryptographic Algorithm from Resolving Singularities*.

Employment

University of Manitoba
- PIMS Postdoctoral Fellow
- Instructor, Engineering Mathematical Analysis (MATH 2130), Spring and Fall 2019
- Instructor, Calculus 2 (MATH 1700), Fall 2018

Cornell University
- Teaching Assistant, Graduate Algebra II (MATH 6320), 2018
- Teaching Assistant, History of Mathematics (MATH 4030), 2018
- Teaching Assistant, Graduate Algebra (MATH 6310), 2016 – 2017
- Teaching Assistant, Intro to Computing using Python (CS 1110), 2017
- Instructor, Calculus I (MATH 1110), 2017
- Teaching Assistant, Search and Optimization with Metaheuristics (SYSEN 5240), 2016
- Teaching Assistant, Linear Algebra for Engineers (MATH 2940), 2016
- Lecturer/Supervisor, Ithaca High School Senior Seminar, 2013-2016
- Teaching Assistant, Math and Politics (MATH 1340), 2015
- Teaching Assistant, Computation & Culture in the Digital Age (CS/INFO 1305), 2015
- Summer Tutoring Manager, 2013-2017
- Teaching Assistant, Applied Functional Analysis (MATH 6220), 2014
- Teaching Assistant, Measure Theory (MATH 6210), 2013

University of Toronto
- Teaching Assistant, Calculus! (MAT 137), 2011-2012
- Teaching Assistant, Calculus for Life Sciences (MAT 134), 2011-2012
- Teaching Assistant, Calculus Sci. I (MAT 135), 2009-2011
- Tutor, Analysis I (MAT 157), 2010-2011
- Research funded by NSERC USRA Grant, Supervised by Professor Edward Bierstone, 2010

University of British Columbia
- Research funded by NSERC USRA Grant, Supervised by Professor Kalle Karu, 2009

Academic Awards

PIMS Postdoctoral Fellowship, 2018-2020

NSERC Postgraduate Scholarship PGS-D, 2013-2015
Cornell University Graduate Fellowship, 2012-2013

NSERC Postgraduate Scholarship PGS-M, 2011-2012

NSERC USRA Grant, 2009 & 2010

Conferences and Seminars

To present at the Commutative Algebra session at the CMS Winter Meeting, Toronto 2019

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Presented at the Combinatorial and Commutative Algebra session at the AMS Spring Meeting, Auburn 2019

Presented at the Algebraic Geometry session at the CMS Winter Meeting, Vancouver, 2018

Presented at the Algebra Seminar, McMaster University 2018

Presented at the Arithmetic Seminar, Binghamton University 2018

Presented at the Algebraic Geometry Seminar, University of Illinois at Urbana-Champaign 2017

AMS Sectional Meeting Program, Rutgers University 2015

Route 81 Conference, Cornell University 2014

ALGECOM-09, University of Chicago 2013

Clay Mathematics Summer School on Resolution of Singularities, Obergurgl, 2012

Conference Organization and Outreach

Co-organizer with Kiumars Kaveh, "Convexity in Algebraic Geometry and Symplectic Geometry" special session at the CMS Winter Meeting, Toronto 2019

Participated in Ithaca Senior Seminar, local outreach program involving lectures and advising projects, 2013 – 2016