

# Daniel Labardini-Fragoso

Instituto de Matemáticas, UNAM  
Circuito de la Investigación Científica  
Ciudad Universitaria, Coyoacán, 04510, Mexico.

Office (+52-55)-56224781  
Mobile (+52-55)-19064590

labardini@matem.unam.mx  
<https://www.matem.unam.mx/~labardini/>

**Current employment** *Professor of Mathematics.* Instituto de Matemáticas, Universidad Nacional Autónoma de México (UNAM), tenured since September 2017.

**Previous appointments** *Associate Professor of Mathematics.* Instituto de Matemáticas, UNAM, 2013-2017.  
*Postdoctoral Fellow.* Mathematisches Institut, Universität Bonn, Germany. 2011-2013.  
*Research Assistant.* Department of Mathematics, Northeastern University, Boston, MA, USA. Summer semesters, 2007-2010. Supervisor: Andrei Zelevinsky.  
*Teaching Assistant.* Department of Mathematics, Northeastern University, USA. 2006-2010.  
*Teaching Assistant.* Facultad de Ciencias, UNAM, Mexico. 2002-2006.

**Education** Ph.D. Mathematics. Advisor: Andrei Zelevinsky. Northeastern University, USA. 2010.  
M.Sc. Mathematics. Instituto de Matemáticas, UNAM, Mexico. 2006.  
B.Sc. Mathematics. Facultad de Ciencias, UNAM, Mexico. 2004.

**Honours** *Cátedra Marcos Moshinsky* for young researchers, awarded by UNAM's Physics Institute and the Marcos Moshinsky Foundation. 2018.  
*Level II National Researcher* at the National Researchers System (Sistema Nacional de Investigadores, SNI, Mexico) since January 2018.  
*Level I National Researcher* at SNI from January 2015 to December 2017.  
Nomination by Andrei Zelevinsky to *Northeastern University's 2010 Outstanding Graduate Student Award in Research - Life Sciences, Physical Sciences, and Engineering.* 2010.  
*Sotero Prieto Prize*, awarded by the Mexican Mathematical Society to the best Undergraduate Thesis in Mathematics. 2004.  
*Mención Honorífica* (equivalent to *Summa Cum Laude*) at undergraduate thesis defense. 2004.

**Research grants** PAPIIT-IN112519 "Álgebras de Caldero-Chapoton, relaciones de madeja y bases genéricas". 2019-2020.  
CONACyT-238754 "Carcajes y especies con potenciales, álgebras de superficies y teoría de Teichmüller: Teoría, algoritmos y visualización". Category: Young Researcher. 2015-2019.  
PAPIIT-IA102215 "Triangulaciones de superficies, álgebras Jacobianas y equivalencias derivadas". Grant proposal and final report both evaluated as "excellent". 2015-2017.

**Publications**

- Quivers with potentials associated to triangulated surfaces.*  
Proceedings of the London Mathematical Society 98 (2009), No. 3, 797-839. 43 pages.
- Cones and convex bodies with modular face lattices.* With Max Neumann-Coto and Martha Takane Imay.  
Proceedings of the American Mathematical Society 140 (2012), 4337-4350. 14 pages.
- Quivers with potentials associated to triangulated surfaces, part III: Tagged triangulations and cluster monomials.* With Giovanni Cerulli Irelli.  
Compositio Mathematica 148 (2012), No. 06, 1833-1866. 34 pages.

4. *Linear independence of cluster monomials for skew-symmetric cluster algebras.*  
With Giovanni Cerulli Irelli, Bernhard Keller and Pierre-Guy Plamondon.  
Compositio Mathematica Vol. 149 (2013), No. 10, 1753-1764. 12 pages.
5. *Strongly primitive species with potentials: aims and limitations.*  
Based on joint work with Andrei Zelevinsky.  
European Mathematical Society. Oberwolfach Reports Vol. 10, Issue 4 (2013). 3404-3407.  
(Report No. 58/2013, DOI: 10.4171/OWR/2013/58). 4 pages.
6. *Caldero-Chapoton algebras.* With Giovanni Cerulli Irelli and Jan Schröer.  
Transactions of the American Mathematical Society 367 (2015), 2787-2822. 32 pages.
7. *Strongly primitive species with potentials I: Mutations.* With Andrei Zelevinsky.  
Boletín de la Sociedad Matemática Mexicana (Tercera serie), Vol. 22 (2016), Issue 1, 47-115.  
69 pages.
8. *On triangulations, quivers with potentials and mutations.*  
Contemporary Mathematics (American Mathematical Society), Vol. 657 “Mexican  
Mathematicians Abroad: Recent Contributions” (Bárceñas, Galaz-García, Moreno Rocha, Eds.),  
2016. 103-127. 25 pages.
9. *Quivers with potentials associated to triangulated surfaces, part IV: Removing boundary  
assumptions.*  
Selecta Mathematica (New series), Vol. 22 (2016), Issue 1, 145-189. 45 pages.
10. *The representation type of Jacobian algebras.* With Christof Geiss and Jan Schröer.  
Advances in Mathematics, Vol. 290 (2016), 364-452. 89 pages.
11. *Species with potential arising from surfaces with orbifold points of order 2, Part I: One  
choice of weights.* With Jan Geuenich.  
Mathematische Zeitschrift, Vol. 286 (2017), Issue 3-4, 1065–1143. 79 pages.
12. *Species with potential arising from surfaces with orbifold points of order 2, Part II: Arbitrary  
weights.* With Jan Geuenich.  
International Mathematics Research Notices (2018). doi:10.1093/imrn/rny090  
104 pages.
13. *On a family of Caldero-Chapoton algebras that have the Laurent phenomenon.*  
With Diego Velasco.  
Journal of algebra, Vol. 520 (2019), 90–135. 46 pages.

## **Selected talks**

- Oberseminar Darstellungstheorie.* Mathematisches Institut, Universität Bonn. 2020.
- Seminario di Algebra e Geometria.* Dipartimento di Matematica “Guido Castelnuovo”,  
Università di Roma La Sapienza. 2020.
- Latin American Algebra Colloquium (Coloquio Latinoamericano de Álgebra).* Plenary talk. El  
Colegio Nacional, México. 2019.
- Cluster Algebras 2019.* Research Institute for Mathematical Sciences, Kyoto University, Japan.
- Tropical Geometry meets Representation Theory II.* Mini-course. University of Leicester. 2019.
- First joint meeting of the Colombian and Mexican Mathematical Societies.* Mini-course  
consisting of two plenary lectures. Universidad del Norte, Barranquilla, Colombia. 2018.
- Cluster Algebras, 20 years on.* CIRM, Luminy, France. 2018.
- Spring School Cluster Algebras in Mathematical Physics (CAMP),* Institut für Mathematik,  
Johannes Gutenberg-Universität Mainz. 2017.

*International Conference on Representation Theory and Commutative Algebra: A conference in honor of Jerzy Weyman's 60th Birthday.* University of Connecticut, USA 2015.  
*Cluster Algebras and Related Topics.* MFO, Oberwolfach, Germany. 2013.  
*Algebra, Combinatorics and Representation Theory: In Memory of Andrei Zelevinsky.* Northeastern University, Boston, MA, USA. 2013.

- Editorial board** Associate Editor, *Boletín de la Sociedad Matemática Mexicana (3rd series)*, since Dec. 2018.
- Advisory board** Member of the Evaluating Committee of UNAM's Mathematics Institute since March 2019.
- Organization** *Advances in Representation Theory of Algebras 7, celebrating José Antonio de la Peña's 60th birthday.* Instituto de Matemáticas, UNAM, México.  
*Cluster Varieties and Mathematical Physics.* Casa Matemática Oaxaca, Mexico. 2018.  
*75 years of Mathematics in Mexico.* Instituto de Matemáticas, UNAM, México. 2017.  
*Third meeting of the US-Mexico Conference on Representation Theory, Categorification, and Non-commutative algebra.* Instituto de Matemáticas, UNAM, México. 2017.  
*Special session on Calabi-Yau manifolds and Calabi-Yau algebra.* Mathematical Congress of the Americas, McGill University, Montreal, Quebec, Canada. 2017.  
*Encuentro Nacional de Jóvenes Investigadores en Matemáticas (ENJIM).* Instituto de Matemáticas, UNAM, México. 2015.  
*Modern algorithmic techniques in computer science for Big Data: A Workshop with Prof. John Hopcroft.* INFOTEC-DF, Mexico. 2015.
- Research collaboration and supervision** 15 Visitors, including Raymundo Bautista (UNAM), Ben Davison (Edinburgh), Anna Felikson (Durham), Jan Geuenich (Bonn, now in Bielefeld), John Hopcroft (Cornell), Katerina Hristova (Warwick), Osamu Iyama (Nagoya), Lang Mou (UC, Davis) Pierre-Guy Plamondon (Orsay), Jan Schröer (Bonn), Michael Shapiro (Michigan), Tom Sutherland (Pavia, now in Lisbon). 1 Postdoctoral Fellow (Jonathan Wilson). 2 Ph.D. Students (Jan Geuenich, Ph.D. degree obtained in 2017, though I was not recognized officially as his Advisor; Diego Velasco, Ph. D. degree obtained in 2019). 3 M.Sc. Students (M.Sc. degrees obtained in 2019, 2017 and 2017). 2 Undergraduate Students (both of them obtaining the equivalent to *Summa Cum Laude*; one of them, winner of the *Sotero Prieto Prize*, awarded by the Mexican Mathematical Society to the best undergraduate thesis in Mathematics).
- Teaching experience** 38 courses taught (3 at the Graduate level as Professor, 12 at the Undergraduate level as Professor, 1 at the Graduate level as Teaching Assistant, 22 at the Undergraduate level as Teaching Assistant), 28 of them at UNAM, 10 at Northeastern University.
- Languages** Spanish (native speaker), English (fluent, TOEFL-CBT score 263/300 in November 2005), German (A2, Anfänger).
- Programming language** Python.