

Roser Homs Pons

contact details

TU München
Chair of Mathematical
Statistics
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languages

Singular, Macaulay2

languages

catalan native

spanish native

english C2

german B1

professional experience

- Oct 20-present Technische Universität München München
Postdoctoral researcher in the Mathematical Statistics group, under the supervision of Prof. Mathias Drton.
- Jan 20-Sep 20 Max-Planck-Institut für Mathematik in den Naturwissenschaften Leipzig
Postdoctoral researcher in the Non-linear Algebra group, under the supervision of Prof. Bernd Sturmfels.
- Aug 19-Dec 19 Technische Universität Berlin Berlin
Postdoctoral fellow under the supervision of Prof. Bernd Sturmfels and Prof. Michael Joswig.
- May 15-Apr 19 Universitat de Barcelona Barcelona
Predoctoral researcher under the supervision of Prof. Joan Elias. Teaching assistant and proofreader.
- Sep 14-Mar 15 Universitat Pompeu Fabra Barcelona
Part-time lecturer: Teaching assistant and proofreader.
- Sep 10-Aug 11 Universitat Politècnica de Catalunya Castelldefels
Part-time lecturer: Instructor.

education

- 2019 Ph.D. in Mathematics Universitat de Barcelona (UB)
Gorenstein colength of Artin local k -algebras
Advisor: Prof. Joan Elias.
- 2017 Master in Teaching in Secondary School UB-UAB-UOC-UPC-UPF
Specialization in Mathematics.
- 2012 Master in Professional and Advanced Mathematics UB
Master thesis: On the classification of Artinian algebras
Advisor: Prof. Joan Elias.
- 2010 Degree in Mathematics (licenciatura) UB

publications and preprints

Canonical Hilbert-Burch matrices for power series, with Anna-Lena Winz,
arXiv:2004.04776.

Primary ideals and their differential equations, with Yairon Cid-Ruiz and Bernd Sturmfels, to appear in *Foundations of Computational Mathematics* *arXiv:2001.04700*.

Computing minimal Gorenstein covers, with Juan Elias and Bernard Mourrain, *J. Pure Appl. Algebra* 224.7 (2020), *arXiv:1901.04165*.

On low Gorenstein colength, with Juan Elias, *J. Algebra* 513 (2018), 368-387.

On the analytic type of Artin algebras, with Juan Elias, *Comm. Algebra* 44.6 (2016), 2277-2304.

research stays

9.18-12.18	Università degli Studi di Genova Host: Prof. Maria Evelina Rossi.	Genova, Italy
9.17-12.17	INRIA Sophia Antipolis – Méditerranée Host: Prof. Bernard Mourrain.	Sophia Antipolis, France
4.16-6.16	Universität Osnabrück Host: Prof. Tim Römer.	Osnabrück, Germany

scholarships

2016-2018	Estancias breves Financial support for short research stays at Universität Osnabrück (2016), INRIA Sophia Antipolis (2017) and Università degli studi di Genova (2018).	Ministerio de Economía y Competitividad, Spanish Government
2015-2019	Predocctoral fellowship Financial support for predoctoral contracts for the training of doctors (FPI 2014).	Ministerio de Economía y Competitividad, Spanish Government
2012	Erasmus Intensive Programme Modern Number Theory with Applications to Cryptography and Coding	Georg-August-Universität Göttingen
2006-2010	Excellence programme Full tuition support for the Degree in Mathematics.	Facultat de Matemàtiques, Universitat de Barcelona

teaching

Teaching assistant (exercise sessions and proofreading):

2015/18. Universitat de Barcelona, Facultat de Matemàtiques:

- Degree in Mathematics: Matrices and Vectors, Linear Geometry, Algebraic structures, Introduction to commutative algebra.
- Degree in Chemical Engineering: Linear Algebra.
- Degree in Computer Engineering: Algebra.

2014/15. Universitat Pompeu Fabra, Facultat de Ciències Econòmiques i Empresariales:

- Degree in Business Management: Mathematics I, Mathematics II.

Proofreader:

2011. Departament d'Ensenyament, Catalan Government:

- Mathematics admission test for Catalan universities

Instructor:

2010/11. Universitat Politècnica de Catalunya, Escola d'Enginyeria de Telecomunicació i Aeroespacial:

- Degree in Telecommunications: Calculus

talks

Primary ideals and their differential equations, Nonlinear Algebra Seminar Online Recording. Apr 2, 2020.

Canonical Hilbert-Burch matrices in $k[[x, y]]$, Milestone Conference of the Thematic Einstein Semester on Algebraic Geometry. *Zuze Institut Berlin. Feb 27, 2020.*

Computing minimal Gorenstein covers, Seminar Algebraische Geometrie. *FU Berlin. Feb 13, 2020.*

Understanding primary ideals, PhD Students and Postdocs Seminars of the Thematic Einstein Semester on Algebraic Geometry. *Freie Universität Berlin. Dec 6, 2019.*

Hilbert-Burch matrices of ideals in $k[x, y]$ and $k[[x, y]]$, Forschungsseminar Diskrete Mathematik/Geometrie. *Technische Universität Berlin. Nov 11, 2019.*

Computing minimal Gorenstein covers, Summer Seminar. *MIS MPI Leipzig. Sep 5, 2019.*

Computing minimal Gorenstein covers, MEGA 2019 (Effective Methods in Algebraic Geometry). *Universidad Complutense de Madrid. Jun 17, 2019.*

Computing minimal Gorenstein covers of Artin local rings of low Gorenstein colength, XVI EACA (Encuentro de álgebra computacional y aplicaciones). *Universidad de Zaragoza. Jul 6, 2018.*

Computing Gorenstein colength of Artin rings, Seminari de Geometria Algebraica de Barcelona. *Universitat de Barcelona. Apr 27, 2018.*

How far is an Artin ring from being Gorenstein?, Berlin Mathematical Society – BGSMATH Junior Meeting. *Institut d'Estudis Catalans, Barcelona. Oct 9, 2017.*

How far is an Artin ring from being Gorenstein?, AROMATH Seminar. *INRIA–Sophia Antipolis. Nov 8, 2017.*

On low Gorenstein colength of Artin local rings, Meeting of the Catalan, Spanish and Swedish Mathematical Societies. *Umea, Sweden. Jun 14, 2017.*

Something about Gorenstein rings and Gorenstein colength, Seminari de Doctorands d'Àlgebra, Geometria i Aritmètica. *Universitat de Barcelona. May 10, 2017.*

Gorenstein colength of Artin local rings, Kollegenseminar, *Universität Osnabrück. May 31, 2016.*

organizational activities

Parallel Session on Commutative Algebra and Applications, V Congreso de Jóvenes Investigadores de la Real Sociedad Matemática Española, co-organized with Ignacio García-Marco and Beatriz Pascual-Escudero. *Universitat Jaume I, Castelló 27/01/20-31/01/20.*

scientific outreach

STEM amb tu. Initiative from the Association of Women Researchers and Technologists in Catalonia (AMIT-CAT) to promote STEM among girls through talks in Catalan high schools. November-December 2018.

Matefest 2018. Conference entitled Maths in Music. *Facultat de Matemàtiques, Universitat de Barcelona. April 18, 2018.*

Matemàtiques com tu - International Day of Women and Girls in Science. Conference entitled Music also counts. *Institut d'Estudis Catalans, Barcelona. February 9, 2018.*

complementary education

2011 Programme of Initial Training of University professors *Universitat Politècnica de Catalunya*
Workshops and action programmes about active teaching methodologies at University.

2006 Professional Music Degree *Conservatori Municipal de Música J.M. Ruera, Granollers*

other professional experience

2013-2015	Infor Consultant <i>ERP consultant, focused on Production and Planning and Data Warehousing tools.</i>	Barcelona
2010	Arts Santa Mónica Museum guide <i>Guide of the exhibition Condensed matter: cooking science.</i>	Barcelona