Roser Homs Pons

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professional experience

1.20-current	**Max–Planck–Institut für Mathematik in den Naturwissenschaften**	*Leipzig*
	Postdoctoral researcher	
	Mentor: Prof. Bernd Sturmfels.	
8.19-12.19	**Technische Universität Berlin**	*Berlin*
	Postdoctoral fellow	
	Mentors: Prof. Michael Joswig and Prof. Bernd Sturmfels.	

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*	*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,* *arXiv:2001.04700.*

Computing minimal Gorenstein covers*, with Juan Elias and Bernard Mourrain,* *to appear in J. Pure Appl. Algebra 224 (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**	*Genova, Italy*
	Host: Prof. Maria Evelina Rossi.	
9.17-12.17	**INRIA Sophia Antipolis – Meditérranée**	*Sophia Antipolis, France*
	Host: Prof. Bernard Mourrain.	
4.16-6.16	**Universität Osnabrück**	*Osnabrück, Germany*
	Host: Prof. Tim Römer.	

scholarships

2016-2018	Estancias breves	*Ministerio de Economía y Competitividad, Spanish Government*

Financial support for short research stays at Universität Osnabrück (2016), INRIA Sophia Antipolis (2017) and Università degli studi di Genova (2018).

2015-2019	Predoctoral fellowship	*Ministerio de Economía y Competitividad, Spanish Government*

Financial support for predoctoral contracts for the training of doctors (FPI 2014).

2012	Erasmus Intensive Programme	*Georg-August-Universität Göttingen*

Modern Number Theory with Applications to Cryptography and Coding

2006-2010	Excellence programme	*Facultat de Matemàtiques, Universitat de Barcelona*

Full tuition support for the Degree in Mathematics.

teaching

2015-2019	Universitat de Barcelona	*Facultat de Matemàtiques*

Predoctoral researcher
Teaching assistant (exercise sessions and proofreading) in:
Degree in Mathematics: Matrices and Vectors, Linear Geometry, Algebraic structures and Introduction to commutative algebra.
Degree in Chemical Engineering: Linear Algebra.
Degree in Computer Engineering: Algebra.

2014-2015	Universitat Pompeu Fabra	*Facultat de Ciències Econòmiques i Empresarials*

Part-time lecturer
Teaching assistant (exercise sessions and proofreading) of Mathematics I and II, Degree in Business Management.

2011	Proves d'accés a la Universitat	*Departament d'Ensenyament, Catalan Government*

Proofreader
Proofreader of the Mathematics admission test for Catalan universities.

2010-2011	Universitat Politècnica de Catalunya	*Escola d'Enginyeria de Telecomunicació i Aeroespacial*

Part-time lecturer
Instructor of Calculus, Degree in Telecommunications.

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 Institüt 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, Sweeden. 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 programms about active teaching methodologies at University.	
2006	Professional Music Degree	*Conservatori Municipal de Música J.M. Ruera, Granollers*

other professional experience

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