

# Roser Homs Pons

## contact

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## professional experience

Aug 2019 -  
Dec 2019

Postdoctoral Fellow

TU Berlin

Non-linear algebra research project, under the supervision of  
Michael Joswig and Bernd Sturmfels.

## education

2019

Ph.D. in Mathematics

Universitat de Barcelona

Gorenstein colength of Artin local  $k$ -algebras

Advisor: Joan Elias.

2017

Master in Secondary Education

Teacher Training

UB-UAB-UOC-UPC-UPF

2012

Master in Professional

and Advanced Mathematics

Universitat de Barcelona

Master thesis: On the classification of Artinian algebras

Advisor: Joan Elias.

2010

Degree in Mathematics

Universitat de Barcelona

## publications

Computing minimal Gorenstein covers,

J. Elias, R. Homs, B. Mourrain, *arXiv:1901.04165*

On low Gorenstein colength,

J. Elias, R. Homs, *J. Algebra* 513 (2018), 368-387

On the analytic type of Artin algebras,

J. Elias, R. Homs, *Comm. Algebra* 44.6 (2016), 2277-2304

## research stays

2018

Università degli Studi di Genova

Genova, Italy

Research stay visiting Professor Maria Evelina Rossi.

24/09/18-07/12/18.

2017

INRIA Sophia Antipolis – Méditerranée

Sophia Antipolis, France

Research stay visiting Professor Bernard Mourrain.

18/09/17-15/12/17.

2016

Universität Osnabrück

Osnabrück, Germany

Research stay visiting Professor Tim Römer.

02/04/16-30/06/16.

## teaching

2015-2019	<b>Universitat de Barcelona</b> Pre-doctoral researcher <i>Exercises sessions in:</i> <i>Degree in Mathematics: Matrices and Vectors, Linear Geometry, Algebraic structures and Introduction to commutative algebra.</i> <i>Degree in Chemical Engineering: Linear Algebra.</i> <i>Degree in Computer Engineering: Algebra.</i>	<i>Facultat de Matemàtiques, Barcelona</i>
2014-2015	<b>Universitat Pompeu Fabra</b> Part-time lecturer <i>Exercises sessions in:</i> <i>Degree in Business Management: Mathematics I and II.</i>	<i>Facultat de Ciències Econòmiques i Empresarials</i>
2011	<b>Proves d'accés a la Universitat</b> Proofreader <i>Proofreader of the Mathematics admission test for Catalan universities.</i>	<i>Departament d'Ensenyament</i>
2010-2011	<b>Universitat Politècnica de Catalunya</b> Part-time lecturer <i>Degree in Telecommunications: Calculus.</i>	<i>EETAC, Castelldefels</i>

## scholarships

2018	<b>Estancias breves</b> <i>Support for a short research stay at Università degli studi di Genova.</i>	<i>Ministerio de Economía y Competitividad</i>
2017	<b>Estancias breves</b> <i>Support for a short research stay at INRIA Sophia Antipolis.</i>	<i>Ministerio de Economía y Competitividad</i>
2016	<b>Estancias breves</b> <i>Support for a short research stay at Universität Osnabrück.</i>	<i>Ministerio de Economía y Competitividad</i>
2015-2019	<b>Pre-doctoral fellowship</b> <i>Support for pre-doctoral contracts for the training of doctors.</i>	<i>Ministerio de Economía y Competitividad</i>
2012	<b>Erasmus Intensive Programme</b> <i>Modern Number Theory with Applications to Cryptography and Coding</i>	<i>Georg-August-Universität Göttingen</i>
2006-2010	<b>Excellence programme</b> <i>Full tuition support for the Degree in Mathematics.</i>	<i>Facultat de Matemàtiques, Universitat de Barcelona</i>

## contributed talks

*Computing minimal Gorenstein covers*, MEGA 2019 (Effective Methods in Algebraic Geometry). *Universidad Complutense de Madrid. June 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. July 6, 2018.*

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

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

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

*On low Gorenstein colength of Artin local rings*, Meeting of the Catalan, Spanish and Swedish Math Societies. Umea, Sweeden. June 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, Institut für Mathematik, Universität Osnabrück. May 31, 2016.

## **courses**

*Graduate Course in Category Theory*, BGSMATH – Centre de Recerca Matemàtica. January, 2017. 20h.

*Singularidades vía la acción del morfismo de Frobenius*, Universidad de Sevilla, September 1-5, 2016. 20h

*Algebraic Statistics*, Universität Osnabrück. April-June, 2016. 30h.

## **workshops and conferences**

*Recent developments in Commutative Algebra*, CIME (Centro Internazionale Matematico Estivo) - CIRM (Centro Internazionale per la Ricerca Matematica), Levico Terme (Trento), 01/07/19-05/07/19.

*MEGA 2019 (Effective Methods in Algebraic Geometry)*. Universidad Complutense de Madrid, 17/06/2019-21/06/2019.

*Frobenius Action in Commutative Algebra: Recent Developments (FACARD) 2019*. Universitat de Barcelona, 16/01/19-16/01/19.

*TENSORS*. Politecnico di Torino, 10/09/18-14/09/18.

*ARCADES Doctoral School II and ESR Days*, Universitat de Barcelona, 03/09/18-07/09/18.

*XVI EACA (Encuentro de álgebra computacional y aplicaciones)*. Universidad de Zaragoza, 04/07/18-06/07/18.

*Workshop on Commutative Algebra, Syzygies and Singularities*. Université de Nice, 04/12/17-06/12/17.

*Workshop on commutative algebra devoted to Peter Schenzel*. Universität Osnabrück, 26/10/18-28/10/18.

*Berlin Mathematical Society – BGSMATH Junior Meeting*. Institut d'Estudis Catalans, Barcelona, 09/10/17-10/10/17.

*FoCM (Foundations of Computational Mathematics)*. Universitat de Barcelona, 10/07/17-19/07/17.

*Meeting of the Catalan, Spanish and Swedish Math Societies*. Umea, Sweeden, 12/06/17-15/06/17.

*Algebra and Geometry Meeting 2016*. Universitat de Barcelona, 30/11/16-02/12/16.

*Algebra and Geometry Meeting 2015*. Universitat de Barcelona, 02/12/15-04/12/15.

*Multiplier ideals, Test ideals and Bernstein-Sato polynomials*. Universitat Politècnica de Catalunya, 07/09/15-10/09/15.

## **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 secondary 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

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|------|---|---|
| 2011 | Programme of Initial Training of University professors                                    | Universitat Politècnica de Catalunya                      |
|      | <i>Workshops and action programmes about active teaching methodologies at University.</i> |   |
| 2006 | Professional Music Degree   | Conservatori Municipal de Música J.M. Ruera de Granollers |

## other professional experience

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