

## Ortega Ortega, Angela, Dr.

Date of birth: September 6, 1975, female  
 Place of birth: Monterrey, Mexico.  
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 Position: Permanent Researcher

### Academic Positions

2016 – Permanent Researcher, Institut für Mathematik, Humboldt Universität zu Berlin  
 2015 – 2016 BMS Substitute Professor, Humboldt Universität zu Berlin  
 2009 – 2015 Wissenschaftliche Mitarbeiterin, Institut für Mathematik, Humboldt Universität zu Berlin  
 2008 – 2009 Wissenschaftliche Mitarbeiterin, Fachbereich Mathematik, Universität Duisburg-Essen  
 2006 – 2007 Tenure-track Professor, Instituto de Física y Matemáticas, Universidad Michoacana, Morelia, Mexico  
 2004 – 2006 Postdoc, Universidad Nacional Autónoma de Mexico (UNAM), Instituto de Matemáticas, Campus Morelia  
 2003 – 2004 Attaché Temporaire à l'Enseignement et la Recherche, Université de Nice

### Education

23.01.2013 Habilitation, Humboldt Universität zu Berlin.  
 2000 – 2003 Ph.D in Mathematics, Université de Nice (grade “très honorable”) under the supervision of Prof. Arnaud Beauville  
 1999 – 2000 D.E.A. (Diplôme d'Études Approfondies) in Mathematics, Université de Paris XI, Orsay  
 1996 – 1999 Master in Mathematics, Centro de Investigación en Matemáticas (CIMAT), Guanajuato, Mexico  
 1992 – 1994 Bachelor in Mathematics, University of Nuevo León, Monterrey, Mexico

## Publications

- [1] *Variétés de Prym associées aux revêtements  $n$ -cycliques d'une courbe hyperelliptique*, Math. Z. **245** (2003), 97–103.
- [2] *On the moduli space of rank 3 vector bundles on a genus 2 curve and the Coble cubic*, J. Algebraic Geom. **14** (2005), 327–356.
- [3] *Prym–Tyurin varieties coming from correspondences with fixed points*, J. Algebra **311** (2007), 268–281.
- [4] *Brill-Noether bundles and coherent systems on special curves* (with L. Brambila-Paz), Moduli spaces and vector bundles, 456–472, London Math. Soc. Lecture Notes **359**, Cambridge Univ. Press 2009.
- [5] *Estabilidad de sistemas coherentes* (with L. Brambila-Paz), Papers of the Mexican Mathematical Society, 15–26, Aportaciones Mat. Comun., **40**, Soc. Mat. Mexicana, México, 2009.
- [6] *Prym varieties of cyclic coverings* (with H. Lange), Geom. Dedicata **150** (2011), 391–403.
- [7] *Prym varieties of triple coverings* (with H. Lange), Int. Math. Res. Not. IMRN 2011, no. **22**, 5045–5075.
- [8] *The maximal rank conjecture and rank two Brill-Noether theory* (with G. Farkas), Pure Appl. Math. Q. **7** (2011), no. 4, Special Issue: In memory of Eckart Viehweg, 1265–1296.
- [9] *Higher rank Brill-Noether theory on sections of K3 surfaces* (with G. Farkas), Internat. J. Math. **23** (2012), 1250075.
- [10] *The Brill-Noether curve and Prym–Tyurin varieties*, Math. Ann. **356**, No. 3 (2013), 809–817.
- [11] *Compactification of the Prym map for non cyclic triple coverings* (with H. Lange), Internat. J. Math. **24** (2013), no. 3, 1350015.
- [12] *Log canonical models of the moduli space of spin curves of genus 2* (with H. Lange), J. London Math. Soc. **90**, No.3 (2014), 763–784.
- [13] *Restricted Lazarsfeld–Mukai bundles and canonical curves* (with M. Aprodu and G. Farkas), Development of moduli theory—Kyoto 2013, 303–322, Adv. Stud. Pure Math. **69**, Math. Soc. Japan, [Tokyo], 2016.
- [14] *The Prym map of degree-7 cyclic coverings* (with H. Lange), Algebra Number Theory **10** (2016), 771–801.
- [15] *Minimal resolutions, Chow forms and Ulrich bundles on K3 surfaces* (with M. Aprodu and G. Farkas), J. Reine Angew. Math. **730** (2017), 225–249.
- [16] *Prym varieties of étale covers of hyperelliptic curves* (with H. Lange), Ann. Sc. Norm. Super. Pisa Cl. Sci. (5), Vol. XVIII, issue 2 (2018), 467–482.
- [17] *The fibres of the Prym map of étale cyclic coverings of degree 7* (with H. Lange), Contributions of Mexican Mathematicians Abroad in Pure and Applied Mathematics, Contemporary Math., vol **709**, (2018).
- [18] *On the Prym map of cyclic coverings* (with H. Lange). Archiv der Math. **111**, Issue 6 (2018), 621–631.
- [19] *Generic injectivity of the Prym map for double ramified coverings* (with J.C. Naranjo and A. Verra), Trans. Amer. Math. Soc. **371** (2019), 3627–3646.

- [20] *Hyperelliptic curves on  $(1, 4)$ -polarised abelian surfaces* (with P. Bórowka). *Math. Z.* **292** (2019), no. 1-2, 193–209.
- [21] *On Butler’s conjecture for higher rank* (with L. Brambila-Paz, O. Mata-Gutierrez, P. Newstead). *Internat. J. Math.* 30 (2019), no. 5, 1950024.
- [22] *The uniformization of the moduli space of principally polarized abelian 6-folds* (with V. Alexeev, R. Donagi, G. Farkas and E. Izadi). *J. Reine Angew. Math.* **761** (2020), 163–217.
- [23] *Klein coverings of genus 2 curves* (with P. Bórowka). *Trans. Amer. Math. Soc.* **373** (2020), no. 3, 1885–1907.
- [24] *The Prym map: from coverings to Abelian varieties*. *Notices Amer. Math. Soc.* **67** (2020), no. 9, 1316–1323.
- [25] *Global Prym-Torelli for double coverings ramified in at least 6 points* (with J.C. Naranjo). To appear in *Journal of Algebraic Geometry*. ArXiv:math.AG/2005.11108.
- [26] *The trigonal construction in the ramified case* (with H. Lange), Preprint. ArXiv:math.AG/1902.00251.
- [27] *Hodge classes on the moduli space of  $W(E_6)$ -covers and the geometry of  $A_6$*  (with V. Alexeev, R. Donagi, G. Farkas and E. Izadi), Preprint. ArXiv:2107.09691.

### Academic visits

- 30.08. – 15.06.21 Mittag-Leffler Institut, Stockholm, Sweden
- 18.02. – 15.03.19 MSRI, Berkeley, USA
- 15.02.–15.04.2015— Warwick University, UK
- 15.09. – 30.09.2013 Università de Roma 3, Italy
- 03.03.– 15.03.2013 KAIST, Daejon, Korea
- 14.02. – 26.03.2011 Isaac Newton Institute, Cambridge, UK
- 01.03.– 28.03.2010 University of Georgia, Athens USA
- 02.03. – 14.03.2009 Centro de Investigación en Matemáticas, Guanajuato
- 10.01. – 10.02.2007 Universität Erlangen-Nürnberg
- 25.07. – 13.08.2005 University of Liverpool, UK

### Awards and Grants

- 2012 – 2016 Principal Investigator in the IRTG 1800, *Moduli and Automorphic Forms*, Berlin-Amsterdam-Leiden
- 2015 Prize for scientific excellence of University of Nuevo León, Monterrey, Mexico
- 2007–2010 National Council of Science and Technology (CONACyT), research grant 61011 *Haces Vectoriales sobre curvas algebraicas y variedades de Prym*, Mexico

- 2007 – 2008 Professorship Improvement Program (PROMEP), fellowship and research grant, Mexico
- 2006 – 2008 Member of the National Research System (SNI), Mexico

## Professional Activities

- 2015 – member the Teaching and Learning Committee (KLS), Humboldt Universität
- 2012 – 2016 Principal Investigator in the IRTG 1800, *Moduli and Automorphic Forms*, Berlin-Amsterdam-Leiden
- 2009 – 2016 Member of the SFB 647, *Raum - Zeit - Materie*, 2009-2016
- 2009 – 2016 Faculty member of the *Berlin Mathematical School* and of its Mentor-Program
- June 2013 Group Mentor in the Summer School for high school students, *Lust auf Mathematik*, Jungenbildungszentrum Blossin,
- 2020 Reviewer of the PhD Thesis *On Shimura subvarieties of the Torelli locus and ramified Prym maps* by Irene Spelta (University of Pavia), advisor: Prof. Paola Frediani
- 2014 Reviewer of the PhD Thesis *Modulräume trivial gerahmter und multigerahmter Garben auf Flächen und höherdimensionalen Varietäten und deren mögliche Anwendung auf affine Klassifikationsprobleme* by Olaf Teschke (HU), advisor: Prof. Herbert Kurke
- 2013 Reviewer of the PhD Thesis *Anneaux tautologiques sur les variétés Jacobiennes de courbes avec automorphismes et les variétés de Prym généralisées* by Thomas Richez (Université de Strasbourg), advisor: Prof. Rutger Noot

## Supervised Theses

- 2022 (started) Raghda Abdellatif  
*Polarizations on abelian varieties*
- 2018 Irfan Kadiköylü  
*Rank stratifications of spaces of quadrics and moduli of curves*, co-advised with G. Farkas (HU)
- 2010 Osbaldo Mata Gutiérrez  
 *$(k, l)$ -stability of coherent systems on curves*, co-advised with Leticia Brambila (UNAM)
- March 2017 Diploma Thesis *Geometrische Invariantentheorie am Beispiel binärer Formen vom Grad 8* by Eric Ludwig
- January 2014 Diploma Thesis *Nicht-freie projektive Moduln über Gruppenringen torsionsfreier Gruppen* by Jacqueline Rosar
- January 2014 Diploma Thesis *Die Vermutung von Serre über projektive Moduln* by Marlene Kretschmer

October 2019	Master Thesis <i>Weintraubs Hypothese - Nachweis von speziellen Schurmodulen in Plethysmen</i> by Vicent Hitzler
Februar 2019	Master Thesis <i>Der verallgemeinerte Krullsche Hauptidealsatz</i> by Eric Poprawa
April 2022	Master Thesis <i>Abelian varieties over finite fields</i> by Linus Schroeter
May 2015	Master Thesis <i>Reciprozitätsgesetze</i> by Julia Oteiza
September 2015	Master Thesis <i>Darstellung natürlicher Zahlen als Summe von Quadratzahlen</i> by Christian Piesk
September 2013	Master Thesis <i>Die Catalansche Vermutung</i> by Robert Buge
March 2022	Bachelor Thesis <i>A combinatorical approach to Riemann-Roch Theorem</i> by Max Urlings
Januar 2019	Bachelor Thesis <i>Primärzerlegung von Binomidealen</i> by Moritz Junker
April 2018	Bachelor Thesis <i>Periodizität freier Auflösungen über Hyperflächen</i> by Alexander Gramm
April 2017	Bachelor Thesis <i>Riemann-Roch Theorem für Kurven</i> by Linus Schroeter
Januar 2016	Bachelor Thesis <i>Eine Einführung in die Invariantentheorie</i> by Jakob Rosemann
April 2016	Bachelor Thesis <i>Der Hilbertsche Basissatz: Der originale Beweis im Vergleich zum modernen</i> by Eric Poprawa
December 2013	Bachelor Thesis <i>Primzahltests im Vergleich</i> by Christian Piesk
April 2014	Bachelor Thesis <i>Die historische Herleitung der Lösungsformel für kubische und quartische Polynomgleichungen</i> by Katrin Schmidt
March 2015	Bachelor Thesis <i>Elliptische Kurven in der Kryptographie</i> by Jennifer Stier

### Organization of conferences

Septiembre 2019	Opening conference Thematic Einstein Semester <i>Varieties, Polyhedra, Computation</i> (with P. Bürgisser, G. Farkas and Ch. Haase)
May 2016	Conference <i>Moduli and Automorphic Forms: a meeting for women in mathematics</i> , Humboldt Universität
October 2015	Conference <i>Geometry of algebraic varieties</i> on the occasion of A. Verra's 65th birthday.
May 2014	Conference <i>Moduli and Automorphic Forms: a meeting for young women in mathematics</i> , Humboldt Universität
October 2012	Conference <i>Geometry and Topology of Moduli</i> (with Gavril Farkas), Humboldt Universität
December 2006	Conference <i>Vector Bundles 2006</i> , CIMAT, Mexico

## Lectures

July 2021	Invited lecturer (Mini-Course), <i>Summer School in Algebraic Geometry, TAGSS</i> , Trieste, Italy
December 2019	Invited lecturer (Mini-Course), <i>4th Latinoamerican School on Algebraic Geometry</i> , Talca, Chile
November 2019	Invited lecturer (Mini-Course), <i>Algebraic Geometry and Complex Geometry</i> , CIRM Luminy, France
August 2012	Invited lecturer, <i>Summer School in Algorithmic Mathematics</i> of the DFG Priority Program 1489, Munich
May 2012	Invited lecturer, <i>VIGRE 2012 Summer School on Algebraic Geometry</i> , University of Georgia, Athens, US
August 2007	Invited lecturer, <i>Elliptic curves and Criptography</i> at the VIII School on Algebraic Geometry, University of Guanajuato, Mexico
August 2006	Invited lecturer, <i>Projective Geometry</i> , VII Summer School, Institute of Mathematics, UNAM, Mexico
January 2006	Invited lecturer, <i>Elliptic curves and applications</i> , Second School on Geometry and Dynamics, University of Tabasco, Mexico
May 2005	Invited lecturer, <i>Introduction the vector bundles</i> , VII School on Algebraic Geometry, CIMAT, Guanajuato, Mexico

## Selected Talks

February 2022	<i>Geometry of the fibre of the Prym map</i> , Columbia Algebraic Geometry Seminar,
September 2021	<i>Generically finite Prym maps</i> , Research Program “Moduli and algebraic cycles”, Institut Mittag-Leffler, Stockholm
July 2021	<i>Global Torelli-Prym theorem for ramified double coverings</i> , Mathematical Congress of the Americas, Buenos Aires
June 2021	<i>Klein coverings over genus 2 curves</i> , Arithmetic, Geometry, Cryptography and Coding Theory, CIRM Luminy, France
March 2020	<i>Generic Prym-Torelli theorem for ramified double coverings</i> , Algebraic Geometry Seminar, Rényi Institut of Mathematics, Budapest
June 2019	<i>Klein coverings over genus 2 curves</i> , ISAAC 2019: Complex Geometry, Aveiro, Portugal
June 2018	<i>Generic Torelli theorem for ramified Prym varieties</i> , Geometria in Biacocca 2018, Milan
January 2018	<i>The uniformization of the moduli space of principally polarized abelian 6-folds</i> , 7th Iberoamerican Congress on Geometry, Universidad de Valladolid
October 2017	<i>Generic injectivity of the Prym map for double ramified coverings</i> , AGNES, Northeastern University

- February 2016 *The fibers of the Prym map of degree-7 cyclic coverings*, Algebraic Geometry Seminar, Université de Paris 7
- December 2015 *The Prym map of degree-7 cyclic coverings*, Algebraic Geometry and Representation Theory in Rome, Università di Roma I, La Sapienza
- February 2015 *Prym-Tyurin varieties and the Brill-Noether curve*, algebraic Geometry Seminar, Università di Roma I, La Sapienza
- February 2015 *Stability of restricted Lazarsfeld-Mukai bundles and canonical curves*, “Moduli spaces and derived categories”, University of Warwick
- December 2014 *Describiendo variedades abelianas de dimensión 6*, 2nd. Meeting of Mexican Mathematicians in the World, CIMAT, Guanajuato
- November 2014 *Higher rank Brill-Noether theory on sections of K3 surfaces*, Workshop on Algebraic Geometry, Chinese Academy of Sciences, Beijing
- September 2014 *Log canonical models of the moduli of genus 2 curves*, Algebraic Geometry Seminar, Università di Roma 3
- February 2014 *Minimal Resolutions*, Workshop, Vietnam Institute for Advanced Study in Mathematics, Hanoi
- December 2013 *Prym-Tyurin varieties*, Colloquium, Universiteit van Amsterdam
- September 2013 *Prym of non-cyclic triple covers and log canonical models of the spin moduli space of genus 2*, Algebraic Geometry Seminar, Università di Roma 3
- June 2013 *The minimal resolution conjecture for curves*, Workshop “Recent trends on moduli spaces of curves”, Università di Trieste - SISSA
- March 2013 *Jacobians as Prym-Tyurin varieties*, Workshop on Projective Algebraic Geometry and Moduli, Jeonju, Korea
- March 2013 *Ulrich bundles on K3 surfaces*, Algebraic Geometry Seminar, Università di Pavia
- October 2012 *Géométrie de l'espace des modules de fibrés vectoriels de rang 3*, Rencontres de Géométrie Algébrique, Université de Toulouse
- October 2012 *The Brill-Noether curve and applications to Prym-Tyurin varieties*, Algebraic Geometry Seminar, Universität Bayreuth
- May 2012 *The Brill-Noether curve and Prym-Tyurin varieties*, Georgia Algebraic Geometry Symposium on the occasion of Robert Varley’s 60th birthday, Athens, USA
- February 2012 *The compactified Prym map*, Algebraic Geometry Seminar, Università di Pavia
- March 2012 *Rank 2 Brill-Noether theory and Mercat’s conjecture*, Algebraic Geometry Seminar, Institute of the Romanian Academy, Bucharest
- December 2011 *Admissible  $S_3$ -coverings*, Algebraic Geom. Seminar, Università di Roma 3
- November 2011 *Mercat’s conjecture*, Brill-Noether Day, FU Berlin
- November 2011 *Higher Brill-Noether theory on sections of K3 surfaces*, Algebraic Geometry Seminar, Università di Roma 2 (Tor Vergata)
- September 2011 *Prym varieties of étale non-cyclic triple coverings*, Oberwolfach workshop “Complex Algebraic Geometry”

- September 2011 *Exotic Prym varieties*, Algebraic Geometry Seminar, Universität Mainz
- May 2011 *Compactification de l'application de Prym*, Séminaire de Géométrie Algébrique, Université de Lille
- May 2011 *Pryms in Algebraic Geometry*, BMS Women in Mathematics, Berlin
- February 2011 *Compactification of the Prym map for triple coverings*, Newton Institute, Cambridge UK
- January 2010 *Variétés de Prym d'un revêtement triple non-cyclique*, Séminaire d'Arithmétique et Théorie de l'Information, Université de Marseille
- March 2010 *Prym varieties and their moduli*, Algebraic Geometry Seminar, University of Georgia in Athens
- March 2010 *Exotic Pryms of small dimension*, SUNY Stony-Brook, USA
- November 2009 *Prym varieties of triple étale non-cyclic coverings*, North German Algebraic Geometry Seminar, FU Berlin
- May 2009 *Moduli spaces of coherent systems*, Romanian-German Symposium on Mathematics and its Applications, Sibiu
- April 2009 *Systèmes Cohérents en Géométrie Algébrique*, Algebraic Geometry Seminar, Université de Grenoble
- November 2008 *Existence results on moduli spaces of coherent systems*, Oberseminar, Universität Duisburg-Essen
- January 2008 *Dolgachev's conjecture on the moduli space of rank 3 vector bundles*, Emmy Noether Seminar, Universität Erlangen-Nürnberg
- October 2007 *Vector bundles and theta functions* invited speaker, XL Congress of the Mexican Mathematical Society, México
- May 2007 *Coherent systems over special curves*, invited speaker, Joint Meeting AMS-SMM, Zacatecas
- February 2007 *Moduli space of vector bundles of rank 3 and the Coble cubic*, Algebraic Geometry Seminar, Tufts University, Boston
- February 2007 *The theta map on the moduli space of vector bundles*, Algebraic Geometry Seminar, Texas A&M University
- February 2007 *Dolgachev's conjecture on the moduli space of rank 3 vector bundles*, Algebraic Geometry Seminar, University of Texas at Austin
- January 2007 *Theta map and Coble hypersurfaces*, Algebraic Geometry Seminar, IMPA, Rio de Janeiro
- December 2006 *Moduli space of vector bundles of rank 3 and the Coble cubic*, Conference on Vector Bundles VBAC 2006, Guanajuato
- August 2005 *Prym-Tyurin Varieties*, Conference on Vector Bundles, University of Liverpool
- October 2004 *Decomposition of Prym varieties in product of Jacobians*, Colloquium, Instituto de Matemáticas, UNAM
- December 2003 *On the moduli space of rank 3 bundles and the Coble cubic*, "Géométrie Algébrique Complexe" 2003, CIRM, Luminy



- May 2002      *Variétés de Prym associées aux revêtements  $n$ -cycliques d'une courbe hyperelliptique*, Université de Nice
- October 1994      *The plane crystallographic groups*, Colloquium SCIENTIA, Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM)

## **Languages**

Spanish (mother language), English, French, German, Hungarian (Basic).

25 de febrero de 2022