

Curriculum vitae

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Personal information

Date of birth: September 6, 1975.
Place of birth : Monterrey, Mexico.
Address: Brigittastrasse 35,
45130, Essen, Germany

Area of research

Geometry of moduli spaces of vector bundles over algebraic curves, abelian and Prym-Tyurin varieties.

Education

2000-2003 Ph.D. in Mathematics, Université de Nice Sophia–Antipolis, France.
1999-2000 D.E.A. (Diplôme d’Études Approfondies) in Mathematics, Université de Paris XI, Orsay, France.
1996-1999 Master in Mathematics, Centro de Investigación en Matemáticas (CIMAT), Guanajuato, Mexico.
1992-1996 Bachelor in Mathematics, Universidad Autónoma de Nuevo León, Mexico.

Thesis

“Sur l’espace des modules des fibrés vectoriels de rang 3 sur une courbe de genre 2 et la cubique de Coble”, under the direction of Arnaud Beauville, defended on September 15, 2003 with mention “Très honorable”.

Positions

From **April, 2008** Mitarbeiterin, Fachbereich Mathematik, Universität Duisburg-Essen, Essen.
2006-2008 Professor (Titular “C”), Instituto de Física y Matemáticas, Universidad Michoacana de San Nicolás de Hidalgo, Morelia.
2004-2006 Post-doctoral position, Instituto de Matemáticas, UNAM, Morelia.
2003-2004 Associated Professor (ATER), Laboratoire J.-A.Dieudonné, Université de Nice.

Awards and grants

- National Council of Science and Technology (CONACyT), research grant 61011 (2007-2010)
- Professorship Improvement Program (PROMEP), fellowship and research grant (2007-2008).
- Member of the National System of Researchers (SNI) since January 2006, register number 34377.
- Centro de Investigación en Matemáticas, acknowledgement to the best average grade (promotion 96-98).

Publications and preprints

- *Variétés de Prym associées aux revêtements n -cycliques d'une courbe hyperelliptique*, Mathematische Zeitschrift 245 (2003), 97–103.
- *On the moduli space of rank 3 vector bundles on a genus 2 curve and the Coble cubic*, Journal of Algebraic Geometry 14 (2005), 327–356 .
- *Prym-Tyurin varieties coming from correspondences with fixed points*, Journal of Algebra 311 (2007), 268–281.
- *Brill-Noether bundles and coherent systems over special curves* (with L. Brambila-Paz). To appear in the proceedings of the conference *Vector Bundles over Algebraic Curves 2006*.
- *Prym varieties of cyclic coverings* (with H. Lange). ArXiv: math.AG / 0805.1020, preprint.
- *Tensor product of coherent systems* (with L. Brambila-Paz). ArXiv: math.AG / 0711.3944, preprint.

Teaching

- Fall 2007, *Algebraic Geometry* graduate course, *Linear Algebra II*, Universidad Michoacana.
- Spring 2007, *Real Analysis* (graduate course) and *Linear Algebra*, Universidad Michoacana.
- Fall 2006, *Commutative Algebra* (graduate course), Universidad Nacional Autónoma de México.
- Spring 2006, *Algebraic Geometry* (graduate course), Universidad Nacional Autónoma de México.
- Spring 2005, *Introduction to Algebraic Geometry*, Universidad Michoacana.
- Spring 2004, assistant of the course *Algebra I*, Université de Nice.

- Fall 2003, assistant of the course *Mathematics, Science of Life* , Université de Nice.
- Spring 2002, assistant of the course *Mathematics, Science of Life* , Université de Nice.
- Spring 1999, assistant of the course *Algebraic Topology* (graduate course), Centro de Investigación en Matemáticas.
- Fall 1998, assistant of the course *Algebra*, Universidad de Guanajuato.
- 1997-1998, assistant of the courses *Linear Algebra I* and *Linear Algebra II*, Centro de Investigación en Matemáticas.

Talks and mini-courses.

- February 2008 *On the moduli space of rank 3 bundles on a genus 2 curve*, Algebraic Geometry Seminar, Universität Humboldt.
- January 2008 *Dolgachev's conjecture on the moduli space of rank 3 bundles on a genus 2 curve*, Algebraic Geometry Seminar, Universität Erlangen - Nürnberg.
- November 2007, *P vs NP : a one million dollars problem* , Interdisciplinary Seminar, Faculty of Mathematics, Universidad Michoacana.
- November 2007, *Complexity: 'easy to find or easy to check?'* , Student Seminar Instituto de Matemáticas, UNAM, campus Morelia.
- October 2007, *Vector bundles on algebraic curves and theta functions*, invited speaker, XL Congress of the Mexican Mathematical Society, Universidad Autónoma de Nuevo León.
- August 2007, *Elliptic curves and Cryptography*, mini-course, VIII School on Algebraic Geometry, Universidad de Guanajuato.
- June 2007, *Elliptic curves and applications*, VIII Summer School, Instituto de Matemáticas, UNAM, campus Morelia.
- May 2007, *Coherent systems over special curves*, invited speaker, Joint Meeting AMS-SMM, Universidad de Zacatecas.
- April 2007, *Elliptic curves and applications*, Colloquium , Faculty of Mathematics, Universidad de Zacatecas.
- February 2007, *Moduli space of vector bundles of rank 3 and the Coble cubic*, Vector Bundles Seminar, Tufts University, Boston.
- February 2007, *Dolgachev's conjecture on the moduli space of rank 3 bundles on a genus 2 curve*, Seminar, Texas A & M University .
- February 2007, *Dolgachev's conjecture on the moduli space of rank 3 bundles on a genus 2 curve*, Algebraic Geometry Seminar, University of Texas in 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 over a curve of genus 2 and the Coble cubic*, Conference on Vector Bundles, CIMAT, Guanajuato.
- August 2006, *Geometría proyectiva*, workshop, VII Summer School, Instituto de Matemáticas, UNAM.
- January 2006, *Elliptic curves and Cryptography*, mini-course, Second School on Geometry and Dynamics, Universidad Juárez Autónoma de Tabasco.
- November 2005, *The Nullstellensatz*, First School on Algebraic Geometry in Zacatecas, Universidad de Zacatecas.
- August 2005, *Prym-Tyurin Varieties*, Conference on Vector Bundles, University of Liverpool.
- May 2005, *Introduction to the vector bundles*, mini-curso, VII School on Algebraic Geometry, CIMAT, Guanajuato.
- October 2004, *Descomposition of certain Prym varieties in product of Jacobians*, Colloquium, Instituto de Matemáticas, UNAM.
- February 2004, *On the moduli space of rank 3 bundles on a genus 2 curve*, Algebraic Geometry Seminar, CIMAT, Guanajuato
- December 2003, *On the moduli space of rank 3 bundles on a genus 2 curve and the Coble cubic*, Complexe Algebraic Geometry 2003, CIRM, Luminy.
- May 2002, *Prym varieties associated to n -cyclic coverings of a hyperelliptic curve*, Seminar, Laboratorio J.-A. Dieudonné, UNSA, Nice.
- April 1996, *Applications of the G -sets*, Universidad Autónoma de Nuevo León.
- October 1994, *The plane crystallographic groups*, Colloquium SCIENTIA, Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM).

Languages

English, French, Spanish.