

CURRICULUM VITAE OF ADA BORALEVI

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Citizenship: Italian

Date of Birth: September 17th, 1981

Place of Birth: Florence, Italy

Education:

- Doctor of Philosophy in Mathematics,
Università degli Studi di Firenze, July 2008.
Thesis in Algebraic Geometry,
title: *Quiver representations and homogeneous vector bundles on flag manifolds*,
Advisor: Prof. Giorgio Ottaviani.
- Master of Arts in Mathematics,
UCLA University of California Los Angeles, June 2006.
- “Laurea” (undergraduate degree) in Mathematics, 110/110 summa cum laude.
Università degli Studi di Firenze, September 2004.
Thesis in Algebraic Geometry,
title: *The Horrocks-Mumford bundle and its restrictions to planes*,
Supervisor: Prof. Giorgio Ottaviani.
- Semester attending courses of the Diplôme d’Etudes Approfondies “Méthodes Algébriques”,
Université Paris VI, September 2003–February 2004

Present Position:

- Visiting Assistant Professor at Texas A&M University, Mathematics Department
(from September 2008).

Publications:

- (1) *Vanishing theorems for twisted holomorphic forms*,
with Carla Dionisi and Daniele Faenzi, in preparation.
- (2) *Sections of homogeneous vector bundles*,
preprint, arxiv0907.4590
- (3) *On simplicity and stability of tangent bundles of rational homogeneous varieties*,
to appear in the proceedings of the Summer School “Geometric Methods in Representation Theory” (Grenoble, 2008).
- (4) *Effective results on Picard bundles via M -regularity*,
joint with Francesco Prantil, *Le Matematiche* 43,1 (2008), 181–203.
- (5) *The Horrocks-Mumford bundle restricted to planes*,
Collectanea Mathematica 58,1 (2007), 101–117.

Research Interests:

Holomorphic vector bundles over complex projective spaces. Stable bundles, semistable, prioritary. Hartshorne's conjecture, rank-2 vector bundles on \mathbb{P}^n and low codimension projective varieties. Monads, external algebras. Szygies, minimal resolutions of fiber bundles. Moduli spaces for prioritary bundles with fixed rank and Chern classes. Group actions. Homogeneous vector bundles over rational homogeneous varieties and their cohomology. Quiver representations.

Invited Talks

- *Coomologia di fibrati vettoriali omogenei e rappresentazioni di quivers*, at the Dipartimento di Matematica, Università di Trieste, Italy, June 2009.
- *Simplicity and stability of tangent bundles on rational homogeneous varieties*, in the conference *GAeL XVII, Géométrie Algébrique en Liberté*, Leiden, Netherlands, June 2009.
- *Cohomology of homogeneous vector bundles via quiver representations*, at Northeastern University Mathematics Department, Boston, April 2009.
- *Simplicity and stability of tangent bundles on rational homogeneous varieties*, at Texas A&M University Mathematics Department, College Station, March 2009.
- *Quivers and homogeneous vector bundles on flag manifolds* in the conference *Geometric Methods in Representation Theory*, Grenoble, France, June 2008.
- *Fibrati vettoriali omogenei su varietà di bandiera e rappresentazioni di quivers* in the conference *Giornate di Geometria Algebrica e argomenti correlati IX*, Levico Terme (Trento), Italy, May 2008.
- *Rappresentazioni di quivers e fibrati vettoriali omogenei*, at the Dipartimento "U.Dini", Florence, Italy, May 2008.
- *Homogeneous vector bundles and quiver representations*, in the conference *GAeL XVI, Géométrie Algébrique en Liberté*, Aranjuez, Madrid, Spain, April 2008.
- *Il fibrato di Horrocks-Mumford ristretto ai piani*, in the conference *Progressi Recenti in Geometria Reale e Complessa*, Levico Terme (Trento), Italy, October 2006.
- *Risoluzioni per le restrizioni del fibrato di Horrocks-Mumford ai piani*, on the occasion of the "Giornata Informale di Geometria Algebrica", Dipartimento "U.Dini", Florence, Italy, April 2005.

Teaching

- Instructor, TAMU Mathematics Department, Spring 2009
Course: Math 304, Linear Algebra
- Instructor, TAMU Mathematics Department, Fall 2008
Course: Math 141, Business Mathematics I (2 sections)
- Teaching Assistant, Engineering Dept at Università degli Studi di Firenze, Winter 06
Course: Geometria per il CdL Ingegneria Meccanica.
- Teaching Assistant, UCLA Mathematics Department, Spring 06
Course: Math 32A, Calculus of Several Variables.
- Teaching Assistant, UCLA Mathematics Department Spring 06
Course: Math 121, Introduction to Topology.

Conferences and Schools attended

- *Degenerations, Projective Varieties and Interpolation Theory*, SMI School (Prof. Ciliberto and Prof. Miranda), Cortona, Italy, July 2009.
- *VBAC 2009, Vector Bundles on Algebraic Curves*, Conference, Berlin, Germany, June 2009.
- *GAeL XVII, Géométrie Algébrique en Liberté*, School and Conference (Prof. Farkas, Prof. Müller-Stach and Prof. Sottile), Leiden, Netherlands, June 2009.
- *Texas Algebraic Geometry Seminar TAGS 2009*, Texas A&M University, TX, May 2009.
- *41st Texas Geometry and Topology Conference*, University of Houston, TX, February 2009.
- *Classical Algebraic Geometry Today*, Workshop, MSRI, Berkeley, CA, January 2009.
- *40th Texas Geometry and Topology Conference*, University of Texas at Austin, TX, October 2008.
- *Geometry and Representation Theory of Tensors for Computer Science, Statistics, and other areas*, Workshop, AIM, Palo Alto, CA, July 2008.
- *Geometry and Representation Theory of Tensors for Computer Science, Statistics, and other areas*, School (Dr. Landsberg, Dr. Lim and Dr. Morton), MSRI, Berkeley, CA, July 2008.
- *Geometric Methods in Representation Theory*, Conference, Institut Fourier, Grenoble, France, June 2008.
- *Aspects of Moduli*, Centro De Giorgi, Conference, Pisa, Italy, June 2008.
- *Giornate di Geometria Algebrica e argomenti correlati IX*, Conference, Levico Terme (Trento), Italy, May 2008.
- *GAeL XVI, Géométrie Algébrique en Liberté*, School and Conference (Prof. Demailly, Prof. Huybrechts and Prof. Vistoli), Aranjuez (Madrid), Spain, April 2008.
- *Geometry of Special Varieties*, School and Workshop (Prof. Ciliberto and Prof. Russo), Trento, Italy, September 2007.
- *P.R.A.G.M.A.T.I.C. 2007, Fourier-Mukai transforms, generic vanishing and regularity*, School (Prof. Pareschi and Prof. Popa), Catania, Italy, July 2007.
- *Algebraic Geometry in Higher Dimensions*, Conference, Levico Terme (Trento), Italy, June 2007.
- *Interactions with Algebraic Geometry*, Conference, Firenze, Italy, May 2007.
- *Geometria proiettiva e birazionale delle varietà algebriche*, School (Prof. Ionescu, Prof. Mella and Prof. Ottaviani), Gargnano (Brescia), Italy, April 2007.
- *Progressi Recenti in Geometria Reale e Complessa*, Conference, Levico Terme (Trento), Italy, October 2006.
- *Vector Bundles and Low Codimensional Subvarieties*, School and Workshop (Prof. Ellia and Prof. Miró-Roig), Trento, Italy, September 2006.
- *AGaFe 2005, Geometry of Algebraic Varieties*, Conference, Ferrara, Italy, June 2005.
- *Algebraic Geometry and Categories*, Conference in honour of Prof. A. Hirschowitz, Nice, France, June 2005.
- *Journées de Géométrie Algébrique*, Conference, Lille, France, May 2005.

Scholarships, Certificates

- Selected to participate in joint program Firenze-UCLA organized by UCLA and Università degli Studi di Firenze for Graduate Study at the UCLA Mathematics Department, August 2005–June 2006.
- Erasmus scholarship from the Università degli Studi di Firenze to attend a semester of graduate courses in Paris at the DEA Méthodes Algébriques, Université Paris VI, September 2003–February 2004.
- Certificate of Proficiency in English, University of Cambridge, UK, December 1998.

Service

Reviewer for the AMS.

Coorganizer of Algebraic Geometry Seminar for the research group “Classificazione e proprietà geometriche delle varietà reali e complesse”, Dipartimento “U.Dini”, Università degli Studi di Firenze (January 2005–June 2008).

Coorganizer of Graduate Student Seminar *Colloquiando*, Dipartimento “U.Dini”, Università degli Studi di Firenze (March–June 2008).

Other information

Languages: Italian (native speaker), English (excellent), French (excellent), German (elementary), Spanish (elementary).

Computer skills: Windows and Linux. Maple, Macaulay2. LaTeX.