René Mboro

Curriculum Vitæ

Mathematisches Institut,
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Research experience

Oct. 2018– **Postdoctoral position**, *Mathematical Institute, University of Bonn*, Bonn, Germany.
present   ○ Host: Pr. Daniel Huybrechts.

Nov. 2017– **Postdoctoral position**, *Faculty of mathematics, University of Vienna*, Vienna,
Sept. 2018 Austria.
   ○ Host: Pr. Ludmil Katzarkov.

Oct. 2017– **Mini postdoctoral position**, *Centre de Mathématiques Laurent Schwartz*,
Nov. 2017 Palaiseau, France.
   ○ Host: Pr. Charles Favre.

Education

Oct. 2014– **PhD in Mathematics**, *Centre de Mathématiques Laurent Schwartz*, Palaiseau,
Oct. 2017 France.
   ○ Title: Birational invariants: cohomology, algebraic cycles and Hodge theory.
   ○ Advisor: Pr. Claire Voisin.

2013–2014 **Master 2 in Mathematics, "Analysis, Arthmetic and Geometry"**, *Ecole Poly-technique and Université Paris-sud*, France.
   ○ Master thesis supervised by Pr. Claire Voisin: "Differentiable, holomorphic and algebraic de Rham complexes."

2010–2014 **Engineer Program**, *Ecole Polytechnique*, Palaiseau, Promotion X2010.
   ○ Specialization in Mathematics. Research internship supervised by Pr. Charles Favre: "The Mandelbrot set is universal".

2007–2010 **Classes Préparatoires**, *Lycée Corneille*, France.
Intensive preparation in Mathematics and Physics for the highly competitive entrance exams to the French Grandes Ecoles.

Research Interests

My research interests lie in algebraic geometry with an emphasis on the study of birational invariants related to rationality problems. The birational invariants used in this domain are constructed using cohomology (Hodge theory), algebraic cycles and K-theory (unramified cohomology). The goal is to study and characterize the different classes of "nearly" rational varieties. I am also interested in the derived categories view on rationality problems.

Research articles

2016   *On the universal CH_0 group of cubic threefolds in positive characteristic*, Manuscripta Mathematica, 154(1), pp. 147-168.

2017   *Remarks on the CH_2 of cubic hypersurfaces*, arXiv:1701.04488, to appear in Geometriae Dedicata.

2017   *Remarks on approximate decompositions of the diagonal*, arXiv:1708.02422, to appear in Communications in Algebra

Teaching

Winter semester 2018/2019   **Graduate seminar on algebraic geometry**, *Zeta functions in algebraic geometry*.

Summer semester 2019   **Graduate seminar on complex geometry**, *Complex geometry*.

Talks

January 2019   **The Bielefeld algebraic and arithmetic geometry seminar**, *University of Bielefeld*, Bielefeld, Germany.
- Title: Remarks on varieties of essential CH_0-dimension at most 2.

December 2018   **Warwick algebraic geometry seminar**, *University of Warwick*, Coventry, United Kingdom.
- Title: Remarks on varieties of essential CH_0-dimension at most 2.

August 2018   **Workshop "Arithmetic and Geometry of Cubic hypersurfaces"**, *Leibniz Universität Hannover*, Hannover, Germany.
- Title: Decomposition of the diagonal for cubic threefolds over a field of positive characteristic.

November 2017   **Workshop on algebraic geometry**, *Department of mathematics "F. Enriques"*, *Università degli studi di Milano*, Milano, Italy.
- Title: On 2-cycles on cubic hypersurfaces and related birational invariants.

June 2017   **Mini workshop in algebraic geometry and singularities**, *Basque center for applied mathematics*, Bilbao, Spain.
- Title: On some birational invariants of projective varieties.

March 2017   **Arithmetic and algebraic geometry seminar**, *Korteweg-de Vries Institute*, University of Amsterdam, Netherlands.
- Title: 2-cycles on cubic hypersurfaces and birational invariants.

October 2016   **Workshop "Cubic fourfolds, hyper-Kähler varieties and algebraic cycles"**, *Institut Camille Jordan*, Lyon, France.
- Title: Decomposition of the diagonal for cubic threefolds over a field of positive characteristic.

May 2016   **Séminaire autour des cycles algébriques**, *Jussieu*, Paris, France.
- Title: Décomposition de la diagonale pour les hypersurfaces cubiques de dimension 3 sur un corps de caractéristique positive.

Conferences and Schools attended

August 2018	**Workshop "Arithmetic and Geometry of Cubic hypersurfaces"**, *Leibniz Universität Hannover*, Hannover, Germany.
July 2018	**Workshop "Classical algebraic geometry"**, *Oberwolfach*, Germany.
March 2018	**Birational geometry of hypersurfaces**, *Palazzo Feltrinelli*, Gargnano del Garda, Italy.
March 2018	**Griffiths conference 2018 - Modern geometry**, *University of Miami*, Miami, United States of America.
November 2017	**Workshop on algebraic geometry**, *Department of mathematics "F. Enriques", Università degli studi di Milano*, Milano, Italy.
May 2017	**Journées complexes lorraines**, *Institut Élie Cartan*, Université de Lorraine, Nancy. France
March 2017	**Cycles and Moduli**, *ETH Zürich*, Switzerland.
October 2016	**Workshop "Cubic fourfolds, hyper-Kähler varieties and algebraic cycles"**, *Institut Camille Jordan*, Lyon, France.
August 2016	**Arithmetic algebraic geometry**, *Courant Institute*, New York, USA.
June 2016	**The Hodge conjecture: state of the art**, *Levico Terme*, Trento, Italy.
November 2015	**Heinz Hopf Lectures**, *ETH Zürich*, Switzerland.

Languages

French	**Native**
English	**professional proficiency**