Henri GUENANCIA

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Born on November 9, 1987

Academic Employment

2018-present	**Chargé de Recherche**, *CNRS, Université Paul Sabatier, Toulouse.*
2014-2017	**Simons Instructor**, *Stony Brook University.*

Education

2010-2013	**PhD thesis in Complex Geometry, under the supervision of Sébastien Boucksom and Mihai Păun**, *Université Paris VI, Institut de Mathématiques de Jussieu.*
2009-2010	**Master : Fundamental Mathematics**, *Université Paris VI*, with distinction "Très Bien".
2009	**Admitted to the *Agrégation***, rank 3.
July 2007	**Admitted to the École Normale Supérieure de Paris**, rank 15.

Grants

2015-2019	**NSF Geometric Analysis Grant DMS-1510214**. Singular Kähler-Einstein metrics : analytic and algebraic aspects
2018	**CNRS Grant PEPS**.

Publications

May 2019	**On subvarieties of singular quotients of bounded domains (with B. Cadorel and S. Diverio)**. eprint arXiv:1905.04212
January 2019	**A Bochner principle and its applications to Fujiki class C manifolds with vanishing first Chern class (with I. Biswas and S. Dumitrescu)**, *to appear in Commun. Contemp. Math.*. eprint arXiv:1901.02656
April 2017	**A decomposition theorem for smoothable varieties with trivial canonical class (with S. Druel)**, *Journal de l'École polytechnique - Mathématiques 5 (2018), p. 117-147.* eprint arXiv:1704.01800
April 2017	**Klt varieties with trivial canonical class - Holonomy, differential forms, and fundamental groups (with D. Greb and S. Kebekus)**, *Geom. Topol.* **23**, 2051–2124 (2019). eprint arXiv:1704.01408
May 2016	**Families of conic Kähler-Einstein metrics**, *to appear in Math. Annalen.* eprint arXiv:1605.04348
April 2015	**Kähler-Einstein metrics : from cones to cusps**, *to appear in Crelle.* eprint arXiv:1504.01947
March 2015	**Kähler-Einstein metrics with conic singularities along self-intersecting divisors**, *Int. Math. Res. Not. 2016, No.15, 4634–4648.* eprint arXiv:1503.00326
February 2015	**Semi-stability of the tangent sheaf of singular varieties**, *Algebraic Geometry, Vol 3, n.5 (2016), 508-542.* eprint arXiv:1502.03711
October 2014	**On the boundary behavior of Kähler-Einstein metrics on log canonical pairs (with D. Wu)**, *Math. Annalen* **366** *(1), 101-120 (2016).* eprint arXiv:1410.5366
July 2013	**Conic singularities metrics with prescribed Ricci curvature : the case of general cone angles along normal crossing divisors (with M. Păun)**, *J. Differential Geom.* **103**, *n.1 (2016), 15-57.* eprint arXiv:1307.6375
April 2013	**Kähler-Einstein metrics on stable varieties and log canonical pairs (with R. Berman)**, *Geometric and Functional Analysis* **24** *(6), 1683-1730 (2014).* eprint arXiv:1304.2087
December 2012	**Kähler-Einstein metrics with cone singularities on klt pairs**, *Int. J. Math.* **24** *1350035 (2013).* eprint arXiv:1201.1383

January 2012	**Kähler-Einstein metrics with mixed Poincaré and cone singularities along a normal crossing divisor**, *Annales de l'Institut Fourier* **64** (3), 1291-1330 (2014). eprint arXiv:1201.0952
April 2011	**Metrics with cone singularities along normal crossing divisors and holomorphic tensor fields (with F. Campana et M. Păun)**, *Ann. Scient. Éc. Norm. Sup.* **46** (2013), 879-916. eprint arXiv:1104.4879
November 2010	**Toric plurisubharmonic functions and analytic adjoint ideal sheaves**, *Math. Z.* **271** 1011-1035 (2012). eprint arXiv:1011.3162

Preprints

May 2019	**On subvarieties of singular quotients of bounded domains (with B. Cadorel and S. Diverio)**. eprint arXiv:1905.04212
August 2018	**Quasi-projective manifolds with negative holomorphic sectional curvature**, *submitted*. eprint arXiv:1808.01854
October 2017	**Variation of singular Kähler-Einstein metrics (with J. Cao and M. Paun)**. eprint arXiv:1710.01825
November 2016	**Orbifold stability and Miyaoka-Yau inequality for minimal models (with B. Taji)**, *submitted*. eprint arXiv:1611.05981

Selected talks

July 2019	**Mini-course on varieties with trivial canonical class**, *Summer school "Foliations and Algebraic Geometry"*, Institut Fourier, Grenoble.
May 2019	**Sous-variétés de variétés compactes kähleriennes à courbure holomorphe sectionelle**, *Séminaire de Géométrie*, IMB, Bordeaux.
April 2019	**Subvarieties of compact Kähler manifolds with negative holomorphic sectional curvature**, *Workshop on Higher Dimensional Complex Geometry*, University of Saarland, Saarbrücken.
March 2019	**Subvarieties of compact Kähler manifolds with negative holomorphic sectional curvature**, *Oberseminar "Complex Manifolds"*, University of Bayreuth.
February 2019	**A Bochner principle on singular varieties**, *Groupe de Travail Opérateurs de Dirac*, Université Paris XI, Orsay.
December 2018	**Applications of singular Kähler-Einstein metrics to algebraic geometry**, *Algebraic Geometry Seminar*, Courant Institute, New York, NY.
November 2018	**Variétés kähleriennes compactes à courbure holomorphe sectionelle négative**, *Séminaire de Géométrie Analytique*, IRMAR, Rennes.
November 2018	**Variétés kähleriennes compactes à courbure holomorphe sectionelle négative**, *Séminaire Géométries*, ICJ, Lyon.
November 2018	**Variétés kähleriennes compactes à courbure holomorphe sectionelle négative**, *Séminaire de Géométrie Complexe*, CMI, Marseille.
October 2018	**Subvarieties of compact Kähler manifolds with negative holomorphic sectional curvature**, Chinese Academy of Sciences, Beijing.
October 2018	**Varieties with trivial first Chern class**, *Week long mini-course*, Sichuan University, Chengdu.
July 2018	**Applications of singular Kähler-Einstein metrics to algebraic geometry**, *Algebra and Geometry Seminar*, Universita La Sapienza, Roma 1.
June 2018	**Singular varieties with trivial canonical class**, *Algebraic Geometry Seminar*, TU Chemnitz.
June 2018	**Families of Ricci flat conic metrics**, *2nd Symposium in Geometry and Differential Equations*, ShanghaiTech University.
April 2018	**Families of Ricci flat conic metrics**, *Conférence en Analyse et Géométrie complexe en l'honneur d'Ahmed Zeriahi*, Faculté des Sciences de Rabat.
February 2017	**Variation of singular Kähler-Einstein metrics**, *Séminaire d'Analyse et Géométrie Complexes*, IMJ PRG, Paris.
February 2017	**Variation of singular Kähler-Einstein metrics**, *Séminaire de Géométrie Complexe*, IMT, Toulouse.
June 2017	**Miyaoka-Yau inequality for minimal models**, *Conference Current Developments and New Directions in Kähler Geometry*, Notre Dame University, South Bend, IL.
May 2017	**Miyaoka-Yau inequality for minimal models**, *Research Seminar*, BCC CUNY, New York, NY.
May 2017	**Singular varieties with trivial canonical class**, *Journées Complexes Lorraines*, IECL, Nancy.

December 2016	**Singular varieties with trivial canonical class**, *Séminaire Algèbre et Géométrie*, Institut Fourier, Grenoble.
November 2016	**Singular varieties with trivial canonical class**, *Special Seminar*, CMSA, Harvard University.
September 2016	**Singular varieties with trivial canonical bundle**, *Algebraic Geometry Seminar*, UIC, Chicago, IL.
August 2016	$\mathcal{C}^{2,\alpha}$ **estimates for Kähler-Einstein cone metrics**, *Workshop on the complex Monge-Ampère equation*, AIM, San José, CA.
December 2015	**Regularity of Kähler-Einstein cone metrics**, *Informal Complex Geometry Seminar*, Columbia University.
November 2015	**Kähler-Einstein metrics on stable varieties**, *Program "Moduli spaces and singularities in Riemannian Geometry"*, Simons Center for Geometry and Physics, Stony Brook, NY.
November 2015	**Kähler-Einstein metrics : from cones to cusps**, *Geometry and Topology Seminar*, UMD.
February 2015	**Kähler-Einstein metrics : from cones to cusps**, *Differential Geometry and Geometric Analysis Seminar*, Princeton University.
December 2014	**Conic Kähler-Einstein metrics**, *Groupe de Travail Opérateurs de Dirac*, Université Paris XI, Orsay.
October 2014	**Kähler-Einstein metrics with cone singularities**, *Geometry and Topology Seminar*, Stony Brook University.
June 2014	**Semistability of the tangent sheaf of singular varieties**, *Séminaire de Géométrie Algébrique*, IMJ, Paris.
May 2014	**Semistability of the tangent sheaf of singular varieties**, *Conference on Positivity, Vanishing Theorems and Applications*, Laboratoire Paul Painlevé, Lille.
April 2014	**Kähler-Einstein metrics on stable varieties**, *Workshop Complex Monge-Ampère equations on compact Kähler manifolds (MACK8)*, BIRS, Banff.
June 2013	**Kähler-Einstein cone metrics on klt pairs**, *Workshop on Kähler Geometry*, Simons Center for Geometry and Physics, Stony Brook, NY.
April 2013	**Kähler-Einstein metrics on varieties with log canonical singularities**, *1088th AMS Meeting, Special Session on Complex Geometry and Microlocal Analysis*, Boston College, Chestnut Hill, MA.
March 2013	**Kähler-Einstein metrics on varieties with log canonical singularities**, KIAS, Seoul.
September 2012	**Kähler-Einstein metrics with mixed cone and Poincaré singularities**, *Special Complex Analysis Seminar (KAAS)*, Chalmers, Göteborg.
January 2012	**Kähler-Einstein metrics with cone singularities**, *Workshop KAWA3*, IMUB, Barcelone.
March 2011	**Multiplier ideals : around Howald's theorem**, *Séminaire de Géométrie Algébrique*, IMJ, Paris.

Organization of scientific events

June 2019	**Workshop on Geometric Analysis**, *part of the CIMI semester "Calculus of Variations and Probabilities"*, Université Paul Sabatier, Toulouse.
April 2019	**Workshop on constant scalar curvature Kähler metrics**, Palazzone di Cortona.
February 2019	**Conference Singular Metrics in Kähler Geometry**, *part of the thematic month "Complex Geometry"*, CIRM, Luminy.
Fall 2015	**Program Moduli spaces and singularities in Riemannian Geometry**, Simons Center for Geometry and Physics, Stony Brook.

Teaching experiences

Fall 2018	**Master class (M2)**, *Riemann Surfaces*, Université Paul Sabatier, Toulouse.
2014-2017	**Undergraduate classes**, *Calculus, Linear Algebra*, Stony Brook University.
2012-2014	**Exercise sessions for the course "Holomorphic functions of several complex variables and complex dynamics" given by T-C Dinh**, École Normale Supérieure, Paris.
2011-2014	**Mathematical courses for arts students**, École Normale Supérieure, Paris.
2008-2012	**Examiner in preparatory classes**, Lycée Louis le Grand, Paris.

Supervision

Spring 2014	**Z. Qian (Master's thesis)**, *On the automorphism group of curves of genus $g \geq 2$*, École Normale Supérieure, Paris.
Spring 2013	**R. Côme & S. Douteau (Master's thesis)**, *The Lefschetz Theorem on hyperplane sections*, École Normale Supérieure, Paris.

Spring 2012 **K. Boucher & M. Galeotti (Master's thesis)**, *Yau-Schwarz Lemma and Hyperbolicity*, École Normale Supérieure, Paris.

Languages

French	Mother Tongue
English	Fluent
German	Fluent

Miscellaneous

Journals	Referee for *Advances, Algebraic Geometry, Ann. Inst. Fourier, CAOT, Crelle, Duke, IJM, Journal of Geometric Analysis, Math Annalen, Math Z, MRL, Panoramas et Synthèse*
Responsability	Co-organizer of the Complex Geometry Seminar at the IMT, Toulouse
	Member of hiring committees