Mihai Păun

CONTACT INFORMATION	Mathematisches Institut Universität Bayreuth, 95440 Bayreuth Germany.
EDUCATION	**Université de Strasbourg**, Department of Mathematics, Habilitation Thesis 2004 **Université Joseph Fourier Grenoble**, Department of Mathematics, Ph.D. 1998
APPOINTMENTS	**Professor**, Universität Bayreuth, 2018 – present **Professor**, University of Illinois at Chicago, 2016 – 2018 **Professor**, Korea Institute for Advanced Study, 2012 – on leave of absence since 2016 **Professor**, Henri Poincaré University, 2005 – 2012 **Assistant Professor**, Louis Pasteur University, 1998 – 2005

PROFESSIONAL HONORS AND GRANTS

- University Scholar Award (UIC) 2018, declined.
- PI NSF grant DMS 1707661 2017 - 2020
- External Senior Fellow at FRIAS, "Marie Curie" FCFP Senior fellowship for 3 months, offered by Freiburg Institute for Advanced Study, 2016-2017
- Research grant of the Korean Government, 2012–2016
- "Langevin" prize of the French Academy of Science in 2011
- Invited speaker at the ICM 2010 for a 45′ talk within the section "Algebraic Geometry"
- "Institute Universitaire de France" grant, 2009–2014
- "Korea Institute for Advanced Study Scholar" grant, 2009–2012
- Invited speaker at *Current Developments in Mathematics*, Harvard, 2007
- "Simion Stoilow" prize of the Romanian Academy, 2006 (with J.-P. Demailly)
- Invited talk at the ICM satellite conference in Algebraic Geometry, Shanghai 2002
- Two-Year Sörös Fellowship, 1993

INSTITUTIONAL RESPONSABILITIES

- External member of the hiring committee for a Professorship position at Lyon University and at Montpellier University, 2009-2011
- Core member of *Algebraic and Complex Geometry* Committee Sectional Panel for ICM 2018.

SELECTED
RECENT
PUBLICATIONS

[1] Frédéric Campana and Mihai Păun. Foliations with positive slopes and birational stability of orbifold cotangent bundles *Publ. Math. Inst. Hautes Études Sci,* 129, 2019.

[2] Junyan Cao and Mihai Păun. Kodaira dimension of algebraic fiber spaces over abelian varieties. *Invent. Math.,* 207(1):345–387, 2017.

[3] Frédéric Campana and Mihai Păun. Positivity properties of the bundle of logarithmic tensors on compact Kähler manifolds. *Compos. Math.,* 152(11):2350–2370, 2016.

[4] XiuXiong Chen, Long Li, and Mihai Păun. Approximation of weak geodesics and subharmonicity of Mabuchi energy. *Ann. Fac. Sci. Toulouse Math. (6),* 25(5):935–957, 2016.

[5] Henri Guenancia and Mihai Păun. Conic singularities metrics with prescribed Ricci curvature: general cone angles along normal crossing divisors. *J. Differential Geom.,* 103(1):15–57, 2016.

[6] Frédéric Campana and Mihai Păun. Orbifold generic semi-positivity: an application to families of canonically polarized manifolds. *Ann. Inst. Fourier (Grenoble),* 65(2):835–861, 2015.

[7] Mihai Păun. Techniques de construction de différentielles holomorphes et hyperbolicité (d'après J.-P. Demailly, S. Diverio, J. Merker, E. Rousseau, Y.-T. Siu ...). *Astérisque,* (361):Exp. No. 1061, vii, 77–113, 2014.

[8] Frédéric Campana, Henri Guenancia, and Mihai Păun. Metrics with cone singularities along normal crossing divisors and holomorphic tensor fields. *Ann. Sci. Éc. Norm. Supér. (4),* 46(6):879–916, 2013.

[8] Sébastien Boucksom, Jean-Pierre Demailly, Mihai Păun, and Thomas Peternell. The pseudo-effective cone of a compact Kähler manifold and varieties of negative Kodaira dimension. *J. Algebraic Geom.,* 22(2):201–248, 2013.

[9] Jean-Pierre Demailly, Christopher D. Hacon, and Mihai Păun. Extension theorems, non-vanishing and the existence of good minimal models. *Acta Math.,* 210(2):203–259, 2013.

[10] Frédéric Campana, Vincent Koziarz, and Mihai Păun. Numerical character of the effectivity of adjoint line bundles. *Ann. Inst. Fourier (Grenoble),* 62(1):107–119, 2012.

[11] Bo Berndtsson and Mihai Păun. Quantitative extensions of pluricanonical forms and closed positive currents. *Nagoya Math. J.,* 205:25–65, 2012.

[12] Mihai Păun. Relative critical exponents, non-vanishing and metrics with minimal singularities. *Invent. Math.,* 187(1):195–258, 2012.

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SELECTED
EARLIER
PUBLICATIONS

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[1] C. Birkar and M. Păun. Minimal models, flips and finite generation: a tribute to V. V. Shokurov and Y.-T. Siu. In *Classification of algebraic varieties*, EMS Ser. Congr. Rep., pages 77–113. Eur. Math. Soc., Zürich, 2011.

[2] Mihai Păun. Lecture notes on rational polytopes and finite generation. In *Analytic and algebraic geometry*, volume 17 of *IAS/Park City Math. Ser.*, pages 371–403. Amer. Math. Soc., Providence, RI, 2010.

[3] Mihai Păun. Quantitative extensions of twisted pluricanonical forms and non-vanishing. In *Proceedings of the International Congress of Mathematicians. Volume II*, pages 540–557. Hindustan Book Agency, New Delhi, 2010.

[4] Mihai Păun. Concentration of mass and currents associated to holomorphic curves. In *Journées Élie Cartan 2006, 2007 et 2008*, volume 19 of *Inst. Élie Cartan*, pages 169–205. Univ. Nancy, Nancy, 2009.

[5] Mihai Păun. Courants d'Ahlfors et localisation des courbes entières [d'après Julien Duval]. *Astérisque*, (326):Exp. No. 991, ix, 281–297 (2010), 2009. Séminaire Bourbaki. Vol. 2007/2008.

[6] Bo Berndtsson and Mihai Păun. Bergman kernels and the pseudoeffectivity of relative canonical bundles. *Duke Math. J.*, 145(2):341–378, 2008.

[7] Frédéric Campana and Mihai Păun. Une généralisation du théorème de Kobayashi-Ochiai. *Manuscripta Math.*, 125(4):411–426, 2008.

[8] Mihai Păun. Vector fields on the total space of hypersurfaces in the projective space and hyperbolicity. *Math. Ann.*, 340(4):875–892, 2008.

[9] Mihai Păun. Regularity properties of the degenerate Monge-Ampère equations on compact Kähler manifolds. *Chin. Ann. Math. Ser. B*, 29(6):623–630, 2008.

[10] Frédéric Campana and Mihai Păun. Variétés faiblement spéciales à courbes entières dégénérées. *Compos. Math.*, 143(1):95–111, 2007.

[11] Mihai Păun. Siu's invariance of plurigenera: a one-tower proof. *J. Differential Geom.*, 76(3):485–493, 2007.

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SELECTED
EARLIER
PUBLICATIONS

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[12] Olivier Debarre, Gianluca Pacienza, and Mihai Păun. Non-deformability of entire curves in projective hypersurfaces of high degree. *Ann. Inst. Fourier (Grenoble)*, 56(1):247–253, 2006.

[13] Jean-Pierre Demailly and Mihai Păun. Numerical characterization of the Kähler cone of a compact Kähler manifold. *Ann. of Math. (2)*, 159(3):1247–1274, 2004.

[14] Mihai Păun. On the Albanese map of compact Kähler manifolds with numerically effective Ricci curvature. *Comm. Anal. Geom.*, 9(1):35–60, 2001.

[15] Mihai Păun. Sur les variétés kählériennes compactes à classe de Ricci numériquement effective. *Bull. Sci. Math.*, 122(2):83–92, 1998.

[16] Mihai Păun. Sur l'effectivité numérique des images inverses de fibrés en droites. *Math. Ann.*, 310(3):411–421, 1998.

[17] Mihai Păun. Sur le groupe fondamental des variétés kählériennes compactes à classe de Ricci numériquement effective. *C. R. Acad. Sci. Paris Sér. I Math.*, 324(11):1249–1254, 1997.

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SELECTED
PREPRINTS

[1] Bo Berndtsson, Mihai Păun, Xu Wang: *Algebraic fiber spaces and curvature of higher direct images* arXiv:1704.02279, accepted for publication in *J. Math. Jussieu*, 2019.

[2] Mihai Păun, Nessim Sibony: *Value Distribution Theory for Parabolic Riemann Surfaces,* arXiv:1403.6596, chapter of a forthcoming book by S. Diverio et al on hyperbolicity.

[3] Frédéric Campana, Junyan Cao, Mihai Păun: *Subharmonicity of direct images and applications,* arXiv:1906.11317, 2019.

[4] Junyan Cao, Henri Guenancia, Mihai Păun: *Variation of singular Kähler-Einstein metrics: positive Kodaira dimension,* arXiv:1710.01825, revised version 2019.

[5] Junyan Cao, Henri Guenancia, Mihai Păun: *Variation of singular Kähler-Einstein metrics: Kodaira dimension zero,* arXiv:1908.08087, revised version 2019.

[6] Junyan Cao, Mihai Păun: *On the Ohsawa-Takegoshi extension theorem,* arXiv:2002.04968.

[7] Junyan Cao, Mihai Păun: *On extension of pluricanonical forms defined on the central fiber of a Kähler family,* arXiv:2012.05063.

[8] Stéphane Druel, Henri Guenancia, Mihai Păun: *A decomposition theorem for Q-Fano Kähler-Einstein varieties*, arXiv:2008.05352.

[9] Junyan Cao, Henri Guenancia, Mihai Păun: *Curvature formula for direct images of twisted relative canonical bundles endowed with a singular metric,* arXiv:2102.02744.

GRADUATE
STUDENTS

- Henri Guenancia (2013) (joint supervision with Sébastien Boucksom, Paris) Chargé de recherche, CNRS, Toulouse.

CONFERENCE
ORGANIZATION

1. Co-organizer of the conference *Complex analytic and Differential Geometry*, in honor of J.-P. Demailly, Grenoble 2017.

2. Co-organizer (with P. Eyssidieux, J.-M. Hwang and S. Kebekus) of the conference *Komplexe Analysis*, 2014 and 2017.

3. Co-organizer (with X.-X. Chen, J.-M. Hwang et Y.-G. Oh) *9th Pacific Rim Conference on Complex Geometry*, a satellite conference of the ICM Seoul 2014.

4. Co-organizer (with C. Voisin and J.-P. Demailly) of the conference *Birational Geometry of Projective Manifolds*, Marseille, 7-11 October 2013.

LECTURE
SERIES AND
SUMMER
SCHOOLS

1. *Lectures on Monge-Ampère foliations*, workshop organized by V. Guedj (To-louse), December 2013.

2. Series of talks at Michigan University (about the non-vanishing theorem) at the invitation of M. Mustaţă, 2008.

3. Series of talks at *Géométrie des variétés projectives complexes: programme du modèle minimal* Grenoble, 2007.

4. Series of talks at *A summer school in Taiwan*, organized by E. Viehweg et C.L. Wang, 2004.

5. *Pragmatic* 2004, Catania, organized by O. Debarre and L. Caporaso 2004.

6. *Mini-Course on the Kähler cone of compact complex manifolds*, Luminy, 2003.

1. *Agnes workshop*, lectures on singular metrics on vector bundles, Stony Brook 2017.

2. *Research Membership* for the program in differential geometry at MSRI, during January-May 2016.

3. *Positivité des images directes et applications* Séminaire Bourbaki, Novembre 2016.

4. Invited by S. Kebekus at Freiburg University, September-October 2015.

5. "Seminar speaker" at the *AMS Meeting 2015*, University of Utah, July 13–31 2015.

6. Visiting professor at the University of Michigan, April 20–June 30, 2015.

7. Invited speaker at the Bourbaki seminar, Paris, 21th of March 2015.

8. Invited speaker at the conference *Complex Geometry* organized by S. Kebekus in honor of T. Peternell, during August 2014, in Freiburg.

9. Invited speaker at the conference *Algebraic and Complex Geometry* organized by G. Tian in Beijing, July 2014.

10. Invited by C. Birkar in Cambridge, May-June 2014.

11. Invited speaker at BIRS (Canada), at the workshop organized by S. Boucksom et. al., concerning the Monge-Ampère equations, April 2014.

12. Invited by N. Sibony at Orsay in March 2014, as *professeur invité*.

13. I was invited by Bo Berndtsson and N. Sibony to visit Chalmers University (Sweden) and Orsay Univ. (Paris) in October 2013.

14. Invited talk at *Workshop on Complex Geometry*, August 2013, Singapore, organized by Lawrence Ein, Ngaiming Mok, Wing Keung To and De Qi Zhang.

15. Invited talk at *Ricci curvature: limit spaces and Kähler geometry*, Edinburgh, July 2013.

16. Invited talk at *Conference on Complex Geometry*, June 2013, organized by N. Mok at HKU.

17. Invited talk at *Higher Dimensional Algebraic Geometry* conference in honour of Y. Kawamata's sixtieth birthday, January 7-11, 2013.

18. Invited talk at *Durham Symposium on interactions of birational geometry with other fields*, July 2012, organized by C. Birkar.

19. Invited talk at *Geometry of Kähler manifolds*, Nantes, organized by K. Amerik and F. Bogomolov, Mai 2012.

20. Invited talk at *Kyoto Symposium on Complex Analysis in Several Variables XIV*, conference in honor of T. Ohsawa, July 2011, at Kyoto University.

21. Invited talk at *Summer School on Algebraic Geometry*, June 2011, Kyoto.

22. Invited talk at *Birational Geometry Conference*, organized by C. Birkar and I. Chelsov in honor of V. Shokurov, Edinburgh, December 2010.

23. *Komplexe Analysis*, Oberwolfach, September 2010.

24. Invited talk at *Géométrie algébrique complexe* organized by O Debarre, Ch. Sorger et C. Voisin at IHP (Paris) June 2010.

25. Invited talk at *Nordan*, Mai 2010, conference in honor of Bo Berndtsson.

26. Invited talk at *International Conference of Mathematics*, NCTS Taipei, July 2009.

27. *Main scientific leader* to a PCMI follow-up workshop, Columbus Ohio, Mai 2009.

28. Invited talk at *Complex Geometry*, organized by S. Takayama at Tokyo University, February 2009.

29. *Komplexe Analysis*, Oberwolfach, August 2008.

30. Invited talk at *Géométrie des Variétés Complexes*, organized by A. Teleman, CIRM, November 2006.