

Curriculum Vitae

JEAN-PIERRE DEMAILLY

Born on September 25, 1957 in Péronne (Somme, France)

Professor at Université Grenoble Alpes

Institut Fourier (Mathematics, UMR 5582 of CNRS)

Senior member of IUF (Chair of Analytic Geometry)

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Doctoral studies and early research work

- 1978-1979 3rd Cycle Thesis (\simeq PhD Thesis): *Croissance des fonctions holomorphes sur un fibré à base de Stein et à fibre \mathbb{C}^n , et sur une surface de Riemann* defended on December 15, 1978 at the University of Paris VI under the direction of Henri Skoda.
- 1979-1982 State Thesis (\simeq Habilitation): *Sur différents aspects de la positivité en analyse complexe*, defended on October 19, 1982 at the University of Paris VI under the direction of Henri Skoda (the subject of the so-called “Second Thesis” was posed by Louis Boutet de Monvel).

Career

- Sep. 1979, Appointed researcher at the CNRS LA 213 (Univ. Paris VI).
- 1980-1981, Military service in the Navy (as associate instructor of mathematics at the “Lycée Naval” in Brest).
- Jan. 1983, Appointed professor at the University of Grenoble I (Institut Fourier).
- Jan. 1987, Promoted to the so-called “1st class” of professors.
- Sep. 1991 - Aug. 1996, Appointed junior member of IUF.
- Sep. 1993, Promoted to the so-called “exceptional class” of professors.
- Apr. 1994, Appointed “Membre Correspondant” de l’Académie des Sciences de Paris.
- Sep. 2002 - Aug. 2012, Appointed senior member of IUF.

Awards and Scientific Distinctions

- 1981-1982 Bronze Medal of the CNRS.
- 1983 Rivoire Prize, awarded by the University of Clermont-Ferrand.
- 1986 Peccot-Vimont Prize, awarded by the College of France.
- 1987 Career Prix, awarded by the Academy of Sciences of Paris.
- 1989 IBM Science Prize for Mathematics.
- 1991 International Dannie Heineman Prize, awarded by the Academy of Sciences of Göttingen.
- 1994 Mergier-Bourdeix Prize, Grand Prix of the Academy of Sciences of Paris.

- 1994 ICM invited speaker in Zürich, *L² methods and effective results in algebraic geometry*.
- 1996 Humboldt Prize for international collaboration, Max Planck Society.
- 2006 Simion Stoilow Prix of the Romanian Academy (together with my former PhD student Mihai Păun).
- 2006 ICM plenary speaker in Madrid, theme: *Kähler Manifolds and Transcendental Techniques in Algebraic Geometry*.
- 2007 (December) Appointed as “Membre permanent” de l’Académie des Sciences de Paris.
- 2013 (November) Appointed as Member of Academia Europaea.
- 2015 Stefan Bergman Prize of the American Mathematical Society

Administrative Responsibilities

1. National Responsibilities

- 1987/06-1991/09 Appointed member of the National Committee of Universities (CNU, former CSU, section 23-03).
- 1991/09-1992/12 Appointed member of the National Committee for Scientific Research, CNRS (I resigned due to the birth of a child). Since then I had participated in many different Committees of evaluation for French Mathematics Laboratory (Ecole Polytechnique, Bordeaux three times in 1990, 1994 and 2000, Institut de Mathématiques de Jussieu, Caen, Poitiers, IHES...).
- 1993-1997 Member of the National experts Committee of Doctoral Supervision premium. I am or have been a member of various mathematical Societies or Councils (SMF, AMS, CIMPA, Scientific Committee Sessions “l’Etat de la Recherche” of SMF from 1995 to 1998).
- 2011-2012 Member of the National Committee for Junior IUF positions
- 2013-2014 Member of the National Committee for Senior IUF positions

2. Local Responsibilities

- 1983-1998 I founded the seminar “*Complex Analysis and Geometry*” at Institut Fourier and had been the chief from 1983 to 1998.
- 1992-2003 I have been in charge of the “*Summer School of Mathematics of Grenoble*” for more than 10 years.
- 2003-2006 I served as Director of the UMR 5582 of CNRS (Institut Fourier).

3. Editorial Responsibilities

- 1991 *Journal für die reine und angewandte Mathematik*, Associate Editor.
- 1991-1995 *Journal of Geometric Analysis*.
- 1993-2006 *Annales de l’Institut Fourier*, member of the Editorial Board, and then Editor-in-Chief from May 1998 to May 2006.
- 1994-(present) *Comptes-Rendus Mathématique of the French Academy of Sciences*.
- 1995-2013 *Journal de Mathématiques Pures et Appliquées*.
- 1997-2002 *Inventiones Mathematicae*.
- 2010-(present) *Annales Polonici Mathematici*.
- 2011-(present) *Rivista di Matematica della Università di Parma*.

- 2011-(present) Editor-in-Chief of *Comptes-Rendus Mathématique* (Académie des Sciences).
- 2014-(present) Chair of the international Committee of the mathematical branch of the *Episciences e-publication project*.

Affiliations

- Member of the SMF (Société Mathématique de France).
- Member of AFUL (Association Francophone des Utilisateurs de Logiciels Libres).
- President (2003 to present) of Groupe de réflexion disciplinaire sur les programmes (GRIP - association law 1901, which I founded in June 2003 and was declared officially since July 2005). GRIP is responsible for a network of primary experimental classes (Savoir Lire Ecrire Compter Calculer, “SLECC”). The goal of the SLECC initiative is to reconstruct school curricula on a sound basis in public education (in a situation where the average level has unfortunately become dramatically low) classes. It is open to all students, but nevertheless offers a quite high level of education to any of them – 12 classes in 2006-2007, about 75 classes in 2013-2014.

Participation in Research Programs

I have been involved in a PROCOPE collaboration project with Bayreuth University (jointly with Michael Schneider and Thomas Peternell), spanning over the years 1990-91-92. My collaboration with Peternell continues regularly since 1988 (Schneider accidentally died in 1997). Slightly later, I became responsible for a French-Tunisian CMCU project “*Complex Analysis and Applications*” between the University of Grenoble I and the Faculty of Sciences of Monastir. This project has supported exchanges of researchers and I assumed in this context the partial direction of PhD theses of two Tunisian researchers. Over a period of fifteen years, I have also been a member of various European networks (EUROPROJ, ANACOGA, EAGER, EDGE, PROTEUS, MACK...).

Organization of Scientific Events

- 1989 I organized the Nice Summer School on Complex Analysis CIMPA (duration: 4 weeks).
- 1992 I founded and established the first Summer School in Grenoble. Theme: *Analytic Geometry*, duration: 2 weeks.
- 1994 I organized the sessions in Grenoble (SMF). Theme: *Hodge Theory*. This 3-day sessions resulted in the drafting of a volume published in Panoramas and Synthesis (Volume 3).
- 1995-1996 A special year “*Several Complex Variables*” was organized in MSRI Berkeley, and I was one of six members of the Scientific Committee.
- 1996-2012 I was one of the co-organizers (with Klaus Hulek and Thomas Peternell) of the “*Komplexe Analysis*” sessions at the Oberwolfach Mathematical Institute.
- May 2000 I co-organized with Rob Lazarsfeld a summer school “*Vanishing Theorems and Effective Results in Algebraic Geometry*” for three weeks at ICTP.
- Apr. 2007 I co-organized with János Kollár in MSRI Berkeley the Conference “*Hot topics: Minimal and canonical models in Algebraic Geometry*”.
- I have been attributed an ERC grant in 2015 (ALKAGE project) and organize on every

year of the period 2015-2020 at least one workshop or conference in analytic geometry, held at Institut Fourier.

Regular Collaborations

French-Tunisian cooperation project with the Faculty of Sciences of Monastir (Tunisia) since 1994, continuing a collaboration with Mongi Blel started in 1985; Regular collaboration with Thomas Peternell (Bayreuth University, Germany) since 1988; Collaboration with Michael Schneider (Bayreuth University, Germany) from 1988 until his accidental death in 1997; Collaboration on several occasions with Bernard Shiffman (Johns Hopkins University, Baltimore, USA) since 1992, and M. Passare, R. Lazarsfeld, J. Kollár since 1995; Collaboration on several occasions with Thomas Eckl (University of Cologne, Germany) since 2004; Collaboration since 2007 with Xiangyu Zhou (Institute of Mathematics of the Academy of Sciences at Beijing), in addition to several visits at Tsinghua University.

H-index (whatever it means in pure mathematics !): 40 (Harzing Publish or Perish, v6)

Mathscinet currently lists 112 publications between 1978 and 2017.

All of them can be dowloaded from:

<http://www-fourier.ujf-grenoble.fr/~demailly/>

Most significant publications and preprints from the period 2007 – 2017

- [25] (joint with Junyan Cao and Shin-ichi Matsumura) *A general extension theorem for cohomology classes on non reduced analytic spaces*, Science China Mathematics **60** (2017) 949–962.
- [24] *Recent progress towards the Kobayashi and Green-Griffiths-Lang conjectures*, manuscript Institut Fourier, November 6, 2015, expanded version of talks given at the 16th Takagi Lectures in Tokyo, November 29, 2015.
- [23] *Extension of holomorphic functions defined on non reduced analytic subvarieties*, In: The Legacy of Bernhard Riemann after One Hundred and Fifty Years. Advanced Lectures in Mathematics, vol. 35.1. ArXiv:1510.05230v1, 2015
- [22] (joint with Hervé Gaussier) *Algebraic embeddings of smooth almost complex structures*, talk at the Dolbeault Conference, Paris, June 2014, Complex Geometry Conference, Freiburg, August 2014, and manuscript Institut Fourier, September 2014.
- [21] *Towards the Green-Griffiths-Lang conjecture*, In: Springer Proceedings in Mathematics & Statistics book series (PROMS, volume 127), Analysis and geometry, MIMS-GGTM, Tunis, Tunisia, March 2014. In Honour of Mohammed Salah Baouendi, edited by Ali Baklouti, Aziz El Kacimi, Sadok Kallel, Nordine Mir, 2015, 141–159.
- [20] *On the cohomology of pseudoeffective line bundles*, written exposition of an invited talk at the Abel Symposium 2013, Trondheim, July 2013, <http://abelsymposium.no/2013>
- [19] (in collaboration with Frédéric Campana and Misha Verbitsky) *Compact Kähler 3-manifolds without non-trivial subvarieties*, arXiv: math.AG/1304.7891
- [18] *A rigorous deductive approach to elementary Euclidean geometry*, paru dans Didácticas Específicas, Revista Electrónica - ISSN 1989-5240, Número 7 (Diciembre 2012),

- Artículo 5, 68-118.
- [17] *Pierre Lelong: a foundational work in complex analysis and in analytic geometry*, Notices of the AMS, 61[6] (2014), 586-589
 - [16] *Hans Grauert and the foundations of modern complex analysis*, Notices of the AMS, 61[5] (2014), 476-478
 - [15] (in collaboration with Frédéric Campana and Thomas Peternell) *Rationally connected manifolds and semipositivity of the Ricci curvature*, London Math. Soc. Lecture Note Series no 417, Recent advances in Algebraic Geometry, held in honor of Rob Lazarsfeld's 60th birthday, Cambridge Univ. Press, July 2014, 71-91.
 - [14] (in collaboration with Hoang Hiep Pham) *A sharp lower bound for the log canonical threshold*, Acta Math. 212 (2014) 1-9.
 - [13] (in collaboration with Slawomir Dinew, Vincent Guedj, Hoang Hiep Pham, Slawomir Kolodziej, Ahmed Zeriahi) *Hölder continuous solutions to Monge-Ampère equations*, J. Eur. Math. Soc. (JEMS) 16 (2014) 619-647
 - [12] (in collaboration with S. Boucksom, M. Păun and Th. Peternell) *The pseudo-effective cone of a compact Kähler manifold and varieties of negative Kodaira dimension*, arXiv:math.AG/0405285; appeared in J. Algebraic Geom. 22 (2013), 201-248.
 - [11] (in collaboration with Christopher Hacon and Mihai Păun) *Extension theorems, Non-vanishing and the existence of good minimal models*, Acta Math. 210 (2013) 203-259
 - [10] *Holomorphic Morse inequalities and the Green-Griffiths-Lang conjecture, dedicated to the memory of Eckart Viehweg*, Pure and Applied Mathematics Quarterly 7 (2011) 1165-1208.
 - [9] *A converse to the Andreotti-Grauert theorem*, Annales Faculté Sciences Toulouse Math. 20 (2011), 123-135.
 - [8] *On the mathematical heritage of Henri Cartan, Cartan and Complex Analytic Geometry*, Notices of the AMS 57, number 8 (Sept. 2010), 952-954.
 - [7] *Holomorphic Morse inequalities and asymptotic cohomology groups: a tribute to Bernhard Riemann*, Proceedings of the Riemann International School of Mathematics "Advances in Number Theory and Geometry" held in Verbania, Italy, April 2009; Milan J. Math. 78 (2010), 265-277.
 - [6] (in collaboration with Robert Berman) *Regularity of plurisubharmonic upper envelopes in big cohomology classes*, Proceedings of the Symposium "Perspectives in Analysis, Geometry and Topology" in honor of Oleg Viro (Stockholm University, May 2008), Progress in Math. 296, Birkhäuser/Springer, New York (2012) 39-66.
 - [5] *Appendix to I. Cheltsov and C. Shramov's article "Log canonical thresholds of smooth Fano threefolds": On Tian's invariant and log canonical thresholds*, Uspekhi Mat. Nauk (2008), no.5 (383), 73-180; translation in Russian Math. Surveys 63 (2008) 859-958.
 - [4] (in collaboration with Nefton Pali) *Degenerate complex Monge-Ampère equations over compact Kähler manifolds*, Internat. J. Math. 21 (2010) 357-405.
 - [3] (in collaboration with Jun-Muk Hwang and Thomas Peternell) *Compact Manifolds covered by a torus*, J. Geom. Anal 18 (2008) 324-340.

- [2] *Estimates on Monge-Ampère operators derived from a local algebra inequality*, with an appendix by Ahmed Zeriahi, arXiv:math.CV/0709.3524, Proceedings from the Kiselmanfest (Uppsala, May 2006), “Complex Analysis and Digital Geometry”, editor M. Passare, Acta Universitatis Upsaliensis, Uppsala 2009, 131-143.
- [1] *Kähler manifolds and transcendental techniques in algebraic geometry*, International Congress of Mathematicians, Madrid 2006, Volume I, Plenary lectures and ceremonies, European Math. Soc. (2007) 153-186.