

Curriculum Vitae

Information personnelle

Hoang-Chinh LU
Maître de conférences
Université Paris-Saclay, 91405 Orsay Cedex, France
Laboratoire de mathématique d'Orsay
Bureau 2A12, Bâtiment 307
Email: hoang-chinh.lu@universite-paris-saclay.fr
Page web: <https://www.imo.universite-paris-saclay.fr/lu/>
Parler vietnamien, anglais et français.

Parcours scientifique

- HDR **Théorie du pluripotentiel et géométrie complexe**, présentée le 17 Février 2022 devant le jury composé de Bo Berndtsson, Olivier Biquard, Jean-Benoît Bost, Phong H. Duong, Colin Guillarmou, László Lempert, Valentino Tosatti.
- Depuis Septembre 2016 : Maître de conférences au Laboratoire de mathématique d'Orsay, Université Paris-Saclay.
- Postdoc 2015-2016: Scuola Normale Superiore di Pisa, Italie.
- Postdoc 2013-2015: Chalmers University of Technology, avec Robert Berman.
- ATER à Toulouse 2012-2013, avec Ahmed Zeriahi et Vincent Guedj.
- Thèse Doctorat **Équations Hessiennes complexes**, soutenue en 2012 à Toulouse, sous la direction de Ahmed Zeriahi devant le jury composé de Charles Favre, Vincent Guedj, Sławomir Kolodziej, Karl Oeljeklaus, Jean-Michel Roquejoffre.

Service d'enseignement

- Chargé de TD pour: Géométrie Analytiques complexes, Surfaces de Riemman (M2), Fonctions Holomorphes (L3), Équations différentielles (L2), Analyse (L1, L2), Algèbre (L1,L3), Fonctions de plusieurs variables (L2).
- Modèles dynamiques en Biologie (L3).
- Encadrant de TER pour L3, M1, Immersion de Recherche L2.
- Responsable d'APOGEE Master Math 2016-?.

Responsabilités scientifiques

- Encadrement de thèse pour Quang-Tuân Dang 2019-2022 en codirection avec Vincent Guedj. Tuan va soutenir sa thèse en mai 2022 et partir en Postdoc à Trieste en Septembre 2022.
- Encadrement de thèse pour Mohammed Salouf 2022- ? en codirection avec Omar Alehyane.
- Porteur du projet ANR Paraplui (2020-2024).

- Projet PEPS 2019.
- Co-organisation pour la conférence AMAZER en l'honneur de Ahmed Zeriahi à l'occasion de son départ à la retraite Juin 2021.
- Co-organisation du séminaire de l'équipe ANH depuis Novembre 2020.
- Rapporteur pour *Mathematische Zeitschrift*, *Journal of Geometric Analysis*, *Journal of Functional Analysis*, *The American Journal of Mathematics*, *International mathematics Research Notices*, *Indiana University Mathematics Journal*, *Advances in Mathematics*, *Annales de la faculté de Sciences de Toulouse*, *Journal of Mathematical Analysis and Applications*, *Michigan Journal of Mathematics*, *Potential Analysis*, *Acta Mathematica Vietnamica*, *Annales Polonici Mathematici*, *Crelle*, et plusieurs d'autres.

Participations aux Conférences

- Pluripotential theory on compact Hermitian manifolds, Parma 2021-10.
- Métriques singulières en géométrie complexe Kählérienne, CIRM, Luminy 2019-02
- Workshop in complex Geometry, Chengdu (Chine) 2018-10
- Geometric Methods of Complex Analysis, Oberwolfach 2018-08
- Complex and Analytic Geometry in honor of Ahmed Zeriahi, Rabat, 2018-04
- Constant scalar curvature metrics in Kähler and Sasaki geometry, CIRM 2018-01
- Komplexe Analysis Oberwolfach, 2017-08
- Conference en l'honneur de Demailly, Grenoble 2017-06
- Recent Advances in Complex Differential Geometry, Toulouse, 2016-06
- Complex Geometry Biday, Parma, 2016-02
- Geometria in Bicocca, Milan, 2016-02
- Geometric Methods of Complex Analysis, Oberwolfach, 2015-01
- Complex Analysis, Oslo - Norvège, 2014-12
- Komplexe Analysis, Oberwolfach, 2014-08
- Workshop on Complex Monge-Ampère Equations on Compact Kähler Manifolds, Banff Canada, 2014-04
- Komplex Analysis Winter School, Luminy Marseille, 2014-03
- Summer School and Workshop for Ricci Curvature, Edinburgh, 2013-07
- Komplex Analysis Winter School, Toulouse-Albi, 2013-01
- Workshop in Kähler Geometry, Roma, 2012-11
- Summer School and Conference on Geometric Analysis, Trieste Italy, 2012-06
- Komplex analysis winter school, Barcelona, 2012-02
- Franco-Morocco meeting in Analysis and complex geometry, Marrakech-Maroc, 2011-10
- Summer School in Pluripotential theory, Cetraro Italy, 2011-07
- Aspects analytiques de la géométrie algébrique complexe, Luminy Marseille, 2011-02
- Komplex Analysis Winter School, Luminy Marseille, 2011-02
- Géométrie des variétés complexes IV, Luminy Marseille, 2010-10
- Komplex Analysis Winter School: Toulouse-Albi, 2010-02

Exposés

- *Complex Monge-Ampère equations on compact Hermitian manifolds*, zoom 2021, Parma 2021-10.
- *Finte entropy vs finite energy*, séminaire en ligne sur zoom en 2020 et 2021.
- *Parabolic pluripotential theory*, Orsay 2019-10, Grack 2020-03.
- *Uniform convexity in L^p Mabuchi geometry, the space of rays and geodesic stability*, CIRM Luminy 2019-02, Lille 2019-04, IHP 2019-10.

- *Équation de Monge-Ampère complexe et concavité du volume*. Toulouse 2018-03, Rabbat (Maroc) 2018-04, Oberwolfach 2018-08, Chengdu 2018-10
- *Régularité des minimiseurs de K -énergie et applications*, Angers 2016-03, Grenoble 2016-04, Toulouse 2016-06, Orsay 2016-10
- *From the Kähler-Ricci flow to moving free boundaries*, Pise 2016-01, École Polytechnique Paris 2016-03
- *Convexity of the extended Mabuchi energy and the finite energy Calabi flow*, Pise 2015-11, Milan, Parma 2016-02, Jussieu Paris 2016-03, Marseille 2016-05, Orsay 2016-12
- *Regularization of m -subharmonic functions on compact Kähler manifolds*, Levico Terme Italie, 2015-06
- *The weak Kähler-Ricci flow*, Oberwolfach, 2015-01
- *Generalized Monge-Ampère capacities and applications*, Oslo, 2014-12
- *Régularité en temps court du flot de Kähler-Ricci*, Toulouse, 2014-04
- *Complex Monge-Ampère equations on quasi-projective varieties*, Banff Canada, 2014-04
- *Degenerate complex Hessian equations on compact Kähler manifolds*, Göteborg, 2014-04
- *Generalized Monge-Ampère capacities*, Göteborg, 2013-11
- *Équations hessiennes complexes*, KAWA, Albi, 2013-01
- *Équations hessiennes complexes sur des variétés kähleriennes compactes*, Toulouse, 2012-01

Liste de (Pre)Publications

- (1) E. Di Nezza, C.H. Lu, Geodesic distance and Monge-Ampère measures on contact sets, arXiv:2112.09627.
- (2) V. Guedj, C.H. Lu, Quasi-plurisubharmonic envelopes 3: Solving Monge-Ampère equations on hermitian manifolds, arXiv:2107.01938.
- (3) V. Guedj, C.H. Lu, Quasi-plurisubharmonic envelopes 2: Bounds on Monge-Ampère volumes, arXiv:2106.04272.
- (4) V. Guedj, C.H. Lu, Quasi-plurisubharmonic envelopes 1: Uniform estimates on Kähler manifolds, arXiv:2106.04273.
- (5) E. Di Nezza, V. Guedj, C.H. Lu, Finite entropy vs finite energy, Comment. Math. Helv. 96 (2021), no. 2, 389–419.
- (6) C.H. Lu, Comparison of Monge-Ampère capacities, Ann. Polon. Math. 126 (2021), no. 1, 31–53.
- (7) C.H. Lu, T.T. Phung, T.D. Tô, Stability of complex Monge-Ampère equations on compact complex manifolds. arXiv:2003.08417. Ann. Inst. Fourier (Grenoble).
- (8) C.H. Lu, V.D. Nguyen, Complex Hessian equations with prescribed singularity on compact Kähler manifolds. arXiv:1909.02469. Ann. Sc. Norm. Super. Pisa, Cl. Sci. (5).
- (9) T. Darvas, E. Di Nezza, C.H. Lu, The metric geometry of singularity types. arXiv:1909.00839. J. Reine Angew. Math. 771 (2021), 137–170.
- (10) V. Guedj, C.H. Lu, A. Zeriahi, Pluripotential solutions versus viscosity solutions to complex Monge-Ampère flows. Pure and Applied Mathematics Quarterly 17-3 (2021), 971–990, arXiv:1909.07069.
- (11) T. Darvas, C.H. Lu, Geodesic stability, the space of rays, and uniform convexity in Mabuchi geometry. Geom. Topol. 24, No. 4, 1907–1967 (2020). arXiv:1810.04661.
- (12) V. Guedj, C.H. Lu, A. Zeriahi, Pluripotential Kähler-Ricci flows. Geom. Topol. 24 (2020), no. 3, 1225–1296. arXiv:1810.02121.
- (13) V. Guedj, C.H. Lu, A. Zeriahi, The pluripotential Cauchy-Dirichlet problem for complex Monge-Ampère flows. arXiv:1810.02122. Annales Scientifiques de l'ENS.
- (14) E. Di Nezza, C. H. Lu, L^p metric geometry of big and nef cohomology classes. Acta Math. Vietnam. 45 (2020), no. 1, 53–69. arXiv:1808.06308.

- (15) T. Bayraktar, T. Bloom, N. Levenberg, C. H. Lu, Pluripotential Theory and Convex Bodies: Large Deviation Principle. *Ark. Mat.*, 57 (2019), 247–283.
- (16) T. Darvas, C. H. Lu, Y. A. Rubinstein, Quantization in geometric pluripotential theory. *Commun. Pure Appl. Math.* 73, No. 5, 1100-1138 (2020). arXiv:1806.03800.
- (17) T. Darvas, E. Di Nezza, C.H. Lu, Log-concavity of volume and complex Monge-Ampère equations with prescribed singularity. *Math. Ann.* 379, No. 1-2, 95-132 (2021). arXiv:1807.00276.
- (18) V. Guedj, C.H. Lu, A. Zeriahi, Weak subsolutions to complex Monge-Ampère equation. *J. Math. Soc. Japan* 71 (2019), no. 3, 727–738. arXiv:1703.06728.
- (19) V. Guedj, C.H. Lu, A. Zeriahi, Plurisubharmonic envelopes and supersolutions. *J. Differential Geom.* 113 (2019), no. 2, 273–313.
- (20) R.J. Berman, T. Darvas, C.H. Lu, Regularity of weak minimizers of the K-energy and applications to properness and K-stability. *Ann. Sci. Éc. Norm. Supér. (4)* 53, No. 2, 267–289 (2020). arXiv:1602.03114.
- (21) T. Darvas, E. Di Nezza, C.H. Lu, L^1 -metric geometry of big cohomology classes. *Ann. Inst. Fourier (Grenoble)* 68 (2018), no. 7, 3053–3086.
- (22) V. Guedj, C.H. Lu, A. Zeriahi, Stability of solutions to complex Monge-Ampère flows. *Ann. Inst. Fourier (Grenoble)* 68 (2018), no. 7, 2819–2836.
- (23) R.J. Berman, C.H. Lu, From the Kähler-Ricci flow to moving free boundaries. *J. Éc. polytech. Math.* 5 (2018), 519–563.
- (24) T. Darvas, E. Di Nezza, C.H. Lu, Monotonicity of non-pluripolar products and complex Monge-Ampère equations with prescribed singularity. *Anal. PDE* 11 (2018), no. 8, 2049–2087.
- (25) T. Darvas, E. Di Nezza, C.H. Lu, On the singularity type of full mass currents in big cohomology classes. *Compos. Math.* 154 (2018), no. 2, 380–409.
- (26) R.J. Berman, T. Darvas, C.H. Lu, Convexity of the extended K-energy and the large time behaviour of the weak Calabi flow. *Geom. Topol.* 21 (2017), no. 5, 2945–2988.
- (27) E. Di Nezza, C.H. Lu, Complex Monge-Ampère equations on quasi-projective varieties. *J. Reine Angew. Math.* 727 (2017), 145–167.
- (28) E. Di Nezza, C.H. Lu, Uniqueness and short time regularity of the weak Kähler-Ricci flow. *Adv. Math.* 305 (2017), 953–993.
- (29) C.H. Lu, V.D. Nguyen, Degenerate complex Hessian equations on compact Kähler manifolds. *Indiana Univ. Math. J.* 64 (2015), no. 6, 1721–1745.
- (30) E. Di Nezza, C.H. Lu, Generalized Monge-Ampère capacities. *Int. Math. Res. Not. IMRN* 2015, no. 16, 7287–7322.
- (31) S. Dinew, C.H. Lu, Mixed Hessian inequalities and uniqueness in the class $\mathcal{E}(X, \omega, m)$. *Math. Z.* 279 (2015), no. 3-4, 753–766.
- (32) C.H. Lu, A variational approach to complex Hessian equations in \mathbb{C}^n . *J. Math. Anal. Appl.* 431 (2015), no. 1, 228–259.
- (33) C.H. Lu, Solutions to degenerate complex Hessian equations. *J. Math. Pures Appl. (9)* 100 (2013), no. 6, 785–805.
- (34) C.H. Lu, Viscosity solutions to complex Hessian equations. *J. Funct. Anal.* 264 (2013), no. 6, 1355–1379.