

# Short CV (2022) of Laurent Stolovitch

## PERSONAL INFORMATION

Family name, First name: Stolovitch, Laurent  
Researcher unique identifier(s): <https://orcid.org/0000-0002-4023-7614>  
Date of birth: May 1st, 1967  
Nationality: France  
URL for web site: <http://math.unice.fr/~stolo/>

## EDUCATION

2000 Habilitation à diriger de recherches, Université de Toulouse III, France  
1994 Phd in Mathematics "Classification analytique de champs de vecteurs", Advisor: Bernard Malgrange, Université de Grenoble I, Institut Fourier, France  
1991 Engineer graduated from E.N.S.I.M.A.G (Ecole Nationale Supérieure d'Informatique et de Mathématiques Appliquées de Grenoble), France. ("Grandes Ecoles" Engineering school of Applied mathematics and Computer sciences)<sup>1</sup>

## CURRENT POSITION(S)

2013– Research Director CNRS 1st class  
Université de Côte d'Azur (UCA), Nice, France.

## PREVIOUS POSITIONS

2009–2013 Research Director CNRS 2nd class, Université de Nice Sophia Antipolis, France  
2005–2009 Research Director CNRS 2nd class, Université de Toulouse III, France  
1995–2005 Chargé de Recherches CNRS<sup>2</sup>, Université de Toulouse III, France

## FELLOWSHIPS AND AWARDS

2021-2025 Prime d'Encadrement Docotral et de Recherche, CNRS, France  
2012 Prime Excellence Scientifique, CNRS, France.  
2004 Prix Doisteau-Blutet, Académie des Sciences, Paris.<sup>3</sup>  
2001 Médaille de Bronze (Bronze Medal), CNRS, France.<sup>4</sup>

## GRANTS

2019-2021 PI of UCA project "Real and complex geometry throught Dynamics", K€24.  
2019-2020 PI of UCA-India project " Complex analysis and CR singularities", K€3 (avec G. Bharali),  
2015-2020 Member of team "Bekam" ANR project (PI: Raphaël Krikorian)  
€304 449, ANR-15-CE40-0001-03.  
2014–2019 PI of French-Austrian ANR-FWF project "Dynamics and CR geometry".  
€169 800, ANR-14-CE34-0002-01 (with Bernhard Lamel).  
2014–2017 PI of the French-Brasilan Capes-Cofecub project "Hypoellipticity through complex analysis" (with Paulo Cordaro).  
2010–2014 Leader of the team "DynPde" of ANR project "Dynamics and Pdes".  
€220 000, ANR-10-BLAN-0102

## SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

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<sup>1</sup>French engineering students study two years at university level (intensive training in maths and physics), after their secondary school diploma. Then, after a national competitive examination they enter the "Grandes Ecoles" for three years.

<sup>2</sup>Full time researcher position similar to "Assistant professor" in a Univeristy

<sup>3</sup>The Prix Paul Doistau-Émile Blutet from is a biennial prize awarded by the French Academy of Sciences in the fields of mathematics and physical sciences since 1954. The prize is also awarded quadrennially in biology

<sup>4</sup>The bronze medal rewards initial research that has established a researcher as a specialist in their field. This distinction is a form of encouragement to pursue research that is already well underway and proving successful.

- 2011–2021 Supervised 5 postdocs (Freek Verstringe, Qiaoling Wei, Zhiyan Zhao, Kai Jiang, Martin Klimes), 2 PhD students (Julien Aurouet(2013), Yue Mi)
- 2022 Supervision of Mickael Lebedev (ENS Rennes) for his 2 months Master 1 traineeship. Laboratoire Dieudonné (Math. Department), Université Côte d’Azur, Nice, France.

## MEMBERSHIPS OF SCIENTIFIC SOCIETIES

- 1995– Member of “Société Mathématiques de France”
- 1995– Member of “American Mathematical Society”

## TEACHING ACTIVITIES<sup>5</sup>

- 2011-2013 *Leçon de mathématiques*, mini-course : “Introduction to normal forms of dynamical systems and in geometry”, Ecole Normale Supérieure, Paris, France.
- 2011–2014 Master course “Dynamical systems”, Université de Nice Sophia Antipolis, France.
- 2016–2017 Mini course “Introduction to normal forms of dynamical systems”, Masaryk University, Brno, Czech Republic.
- 2018 Mini-course ”Introduction Cauchy-Riemann singularities and associated complex dynamics” , KIAS, Soul, Korea.
- 2009–2017 Founder and organizer of the seminar “Dynamics and Geometry”, Université de Nice Sophia Antipolis, France.
- 2020 Mini-course ”Introductory lectures on local holomorphic dynamical systems and Cauchy-Riemann geometry”, Pekin University, China (postpone due to pandemic)
- 2020–2022 Graduate course ”Local holomorphic dynamics and Cauchy-Riemann geometry”

## SELECTED ORGANISATION OF SCIENTIFIC MEETINGS <sup>6</sup>

- 2012 Organizer of the conference “Dynamics and Pde’s” in the occasion of the 60th birthday of Hakan Eliasson. CIRM, France.
- 2010 - 2017 Organizer of the yearly Winter school “Dynamics and PDE’s”, Saint-Etienne de Tinée, France
- 2017 Organizer of the workshop “Dynamics and CR geometry”, Nice, France
- 2021 Organizer of the workshop “SCV, CR geometry and Dynamics”, Nice, France.

## INSTITUTIONAL RESPONSIBILITIES

- 2011– Member of the Hiring Committees (for professors and assistant professors), Université Côte d’Azur, France.
- 2017– Manager of the team “Géométrie-Analyse-Dynamique”, Lab. J.-A. Dieudonné, Nice.

## REVIEWING ACTIVITIES

- 2010— Reviewer for Nserc(Canada), Higher School of Economics (Moscow), Israël Science Foundation (Israël), Research Foundation–Flanders (Belgium), Mathjobs (USA), Texas A&M University at Qatar, ESF (Europe), several universities in Beijing, many international journals (Ann. Math., Invent. Math., IHES, Acta Math.,...)

## SELECTED INVITED CONFERENCE PRESENTATIONS

- 2021 ”Analytic theory of differential and difference equations”(70th birthday memorial to A. Bolibruch), Moscow (virtual).
- 2021 ”Minisymposium on complex analysis and geometry”, 8ECM, Slovenia (virtual).
- 2021 ”Index Theory and Complex Geometry”, Singapour (virtual).
- 2020 ”Complex dynamics”, CIRM.
- 2019 “Microlocal Analysis and Asymptotic Analysis”, RIMS, Kyoto, Japan.
- 2019 “Geometric Complex Analysis on Foliations and Dynamics”, RIMS, Kyoto, Japan.
- 2019 AMS-Vietnam conference, Quy-Nhon, Vietman (invited in 2 different sections)
- 2018 “Real and Complex Dynamical Systems” (75th birthday of Y. Ilyashenko), Moscow, Russia.
- 2018 “Progress in Several Complex Variables”, KIAS, Seoul, Korea.
- 2018 Workshop on “Quasi-periodic Dynamics and Schrödinger operators”, Nanjing, China.

<sup>5</sup>For a full time CNRS researcher, teaching is not mandatory

<sup>6</sup>as both in organisation and scientific comities

2017-2019 “Workshop on recent developments in several complex variables and partial differential equations”, Serra Negra, Brazil.

## SELECTED PEER-REVIEWED PUBLICATIONS OF LAURENT STOLOVITCH

•X. Gong and L. Stolovitch. “Equivalence of neighborhoods of embedded compact complex manifolds and higher codimension foliations”. In: *Arnold Math. J.* (2021), pp. 1–85. DOI: 10.1007/s40598-021-00192-w

*In this article, we provide a general results for a neighborhood of a compact complex manifold  $C$  into a manifold being holomorphically equivalent to a neighborhood of the 0th-section in its normal bundle. We also give condition ensuring the existence of a holomorphic foliation having  $C$  as a leaf.*

•X. Gong and L. Stolovitch. “Real submanifolds of maximum complex tangent space at a CR singular point I”. in: *Invent. Math.* 206 (2016), pp. 293–377. DOI: 10.1007/s00222-016-0654-8

*In this article, we open up the study of higher dimensional CR singularity ever since Moser-Webster seminal work in the 80’s due to the introduction of higher dimensional DS concepts and techniques.*

•X. Gong and L. Stolovitch. “Real submanifolds of maximum complex tangent space at a CR singular point II”. in: *J. Differential Geometry* 112 (2019), pp. 121–198. DOI: 10.4310/jdg/1557281008

*This article contains among others the very first proof of existence of holomorphic dynamical systems all the normal forms of which are divergent. This is a breakthrough as the problem was open since Poincaré in 19th century. This shows how progresses in CR geometry induces progresses in DS.*

•I. Kossovskiy, B. Lamel, and L. Stolovitch. “Equivalence of Cauchy-Riemann manifolds and multi-summability theory”. In: *Adv. in Math.* (2021), pp. 1–44. DOI: 10.1016/j.aim.2021.108117

*This is the first time “multisummability theory” of formal solution of irregular differential system is used in a (CR) geometrical problem. This results from a synergy conceptual work.*

•B. Lamel and L. Stolovitch. “Convergence of the Chern-Moser-Beloshapka normal forms”. In: *J. Reine Angew. Math.* (2019), pp. 1–43. DOI: 10.1515/crelle-2019-0004

*This work answers a 50 years long open problem. How to obtain a similar Cher-Moser normal form theorem for higher codimensional Levi non-degenerate CR submanifolds. It is based on our work “Big Denominators..”.*

•E. Lombardi and L. Stolovitch. “Normal forms of analytic perturbations of quasihomogeneous vector fields: Rigidity, invariant analytic sets and exponentially small approximation”. In: *Ann. Scient. Ec. Norm. Sup.* (2010), pp. 659–718. DOI: 10.24033/asens.2131

*It is the first work ever that formalizes the notion of normal form for highly degenerate differential equations at a fixed point. It conceptualizes both notions of resonances and of small divisors in such an unusual context. The ideas/techniques developed has successfully been transferred to other problems of DS/G and to singularity theory.*

•L. Stolovitch. “Big demonimators and analytic normal forms. With an appendix of M. Zhitomirskii”. In: *J. Reine Angew. Math.* 710 (2016), pp. 205–249. DOI: 10.1515/crelle-2013-0111

*This article conceptualize to an abstract situation, the notion of “Poincaré’s Domain”, known for vector fields at a fixed point. It led to the important notions of “Big Denominators” and plays a crucial role in the article with B. Lamel.*

•L. Stolovitch. “A KAM phenomenon for singular holomorphic vector fields”. In: *Publ. Math. Inst. Hautes Études Sci.* 102 (2005), pp. 99–165. DOI: 10.1007/s10240-005-0035-0

*This article develops a non-standard KAM like theory for holomorphic vector fields near a fixed point, showing the existence of a large amount of invariant analytic sets, each being biholomorphic to a “toric variety”.*

•L. Stolovitch. “Singular complete integrability”. In: *Publ. Math. I.H.E.S.* 91 (2000), pp. 133–210. DOI: 10.1007/BF02698742

•L. Stolovitch. “Normalisation holomorphe d’algèbres de type Cartan de champs de vecteurs holomorphes singuliers”. In: *Ann. of Math.* 161 (2005), pp. 589–612. DOI: 10.4007/annals.2005.161.589

*These articles develop the notion of “complete integrability” for commuting holomorphic vector fields near a fixed point, showing convergence of a simultaneous transformation to a normal form. Conceptual ideas lead to our works on CR singularities with X. Gong*