

CURRICULUM VITAE

Fabio Zuddas

PERSONAL INFORMATIONS

Place and date of birth : Cagliari (Italy), 27/02/1978

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CURRENT POSITION

Associate professor in Geometry and Algebra at the Department of Mathematics and Computer Science of the University of Cagliari; italian scientific qualification to Full Professor obtained on 18/09/2018

PAST POSITIONS

- 06/06/2011 – 29/12/2016 Researcher at the University of Udine (Italy)
- 01/12/2008 – 01/06/2011 Postdoctoral fellowship “Geometria delle varietà reali e complesse” at the Department of Mathematics of University of Parma (Italy)
- 01/10/2007 – 01/10/2008 Stage at the Department of Mathematics of the University of Parma financed by Program “Master And Back” 2007 Regione Sardegna
- 01/05/2006 – 01/01/2007 Research fellowship with the Department of Mathematics of University of Rome “La Sapienza” (financed by PRIN MIUR Cofin 2005 “Geometria Riemanniana e strutture differenziabili”)

STUDIES

- Ph.D. in Mathematics at the University J.Fourier, Grenoble (joint with University of Cagliari), supervisors S. Gallot, G. D’Ambra, dissertation titled “Propriétés algébriques des groupes des transformations et géométrie des espaces”
- Degree in Mathematics at the University of Cagliari, 16/07/2001 (score 110/110 cum Laude)

RESEARCH INTERESTS

- Special Kaehler metrics on complex manifolds (in particular: Kaehler-Einstein metrics, constant scalar curvature metrics and their generalizations, projectively induced metrics and manifolds with large symmetry groups)
- Szego kernel and TYZ (Tian-Yau-Zelditch) expansion.
- Symplectic invariants (Gromov width and other symplectic capacities)
- Magnetic geodesics
- Algebraic entropy of groups and entropy of measure metric spaces

PUBLICATIONS

- [1] F. Zuddas, “Some finiteness results for groups with bounded algebraic entropy”, *C.R.Acad.Sci. Paris, Ser. I* 338 (2004), 915-920.
- [2] A. Loi, F. Zuddas, “Symplectic maps of complex domains in complex space forms”, *Journal of Geometry and Physics* 58 (2008), 888-899.
- [3] A. J. Di Scala, A. Loi, F. Zuddas, “Riemannian geometry of Hartogs domains”, *International Journal of Mathematics*, Vol. 20, No. 2 (2009), 1-10.
- [4] A. Loi, F. Zuddas, “Englis expansion for Hartogs domains”, *International Journal of Geometric Methods in Modern Physics*, Vol. 6, No. 2 (2009) 233-240.
- [5] A. Loi, F. Zuddas, “Canonical metrics on Hartogs domains”, *Osaka Journal of Mathematics*, Vol. 47 No. 2 (2010), 507-521.
- [6] F. Zuddas, “Some finiteness results for groups with bounded algebraic entropy”, *Geometriae Dedicata*, Vol. 143 No. 1 (2009), 49-62.
- [7] A. J. Di Scala, A. Loi, F. Zuddas, “Symplectic duality between complex domains”, *Monatshefte für Mathematik*, Vol. 160 (2010), 403-428.
- [8] F. Zuddas, “A finiteness result for groups which quasi-act on hyperbolic spaces”, *Geometriae Dedicata*, Vol. 150 (2011), 35-47.
- [9] A. Della Vedova, F. Zuddas, “Scalar curvature and asymptotic Chow stability of projective bundles and blowups”, *Trans. Amer. Math. Soc.* 364 (2012) no. 12, 6495-6511.
- [10] C. Arezzo, A. Loi, F. Zuddas “On homothetic balanced metrics”, *Ann. Global Anal. Geom.* 41 (2012), no. 4, 473-491.
- [11] A. Loi, M. Zedda, F. Zuddas, “Some remarks on the Kaehler geometry of the Taub-NUT metrics”, *Ann. Global Anal. Geom.* (2012), no. 4, 515-533.
- [12] C. Arezzo, A. Loi, F. Zuddas “Szegö kernel, regular quantizations and spherical CR-structures”, *Math. Z.* 275 (2013), no. 3-4, 1207-1216.
- [13] A. Loi, R. Mossa, F. Zuddas, “Some remarks on the Gromov width of homogeneous Hodge manifolds”, *Int. J. Geom. Methods Mod. Phys.* 11, Issue 09 (2014).
- [14] A. Loi, R. Mossa, F. Zuddas, “Symplectic capacities of Hermitian symmetric spaces” *Journal of Symplectic Geometry* 13(4), 1049-1073 (2015)
- [15] C. Arezzo, A. Loi, F. Zuddas, “Some remarks on the symplectic and Kaehler geometry of toric varieties”, *Annali di Matematica Pura e Applicata* 4, 1287-1304 (2016)
- [16] A. Loi, F. Zuddas, “On the Gromov width of homogeneous Kaehler manifolds”, *Diff. Geom. Appl.* 47, 130-132 (2016)
- [17] A. Loi, R. Mossa, F. Zuddas, “The log-term of the Bergman kernel of the disk bundle over a homogeneous Hodge manifold” *Ann. Global Anal. Geom.* (2017) 51, 35-51
- [18] D. Alekseevsky, F. Zuddas, “Cohomogeneity one Kähler and Kähler-Einstein manifolds with one singular orbit I” *Ann. Global Anal. Geom.* (2017) 52:1, 99-128
- [19] A. Loi, F. Salis, F. Zuddas, “Two conjectures on Ricci-flat Kähler metrics”, *Mathematische Zeitschrift*, 290 (1), 599-613 (2018)
- [20] A. Loi, F. Salis, F. Zuddas, “On the third coefficient of TYZ expansion for radial scalar flat metrics”, *Journal of Geometry and Physics* 133, 210-218 (2018)
- [21] A. Loi, R. Mossa, F. Zuddas, “Bochner coordinates on flag manifolds”, *Bull. Braz. Math. Soc, New Series*, 50(2), 497-514 (2018)

- [22] R. Musina, F. Zuddas “Embedded loops in the hyperbolic plane with prescribed, almost constant curvature”, *Ann. Global Anal. Geom.* (2019), Volume 55, Issue 3, pp 509–528
- [23] D. Alekseevsky, F. Zuddas, “Cohomogeneity one Kaehler and Kaehler-Einstein manifolds with one singular orbit II”, *Ann. Global Anal. Geom.* 57 (2020), 153-174
- [24] A. Loi, R. Mossa, F. Zuddas, “Finite TYCZ expansions and cscK metrics”, *Journal of Mathematical Analysis and Applications*, Volume 484, Issue 1 (2020), 123715
- [25] A. Loi, M. Zedda, F. Zuddas, “Ricci flat Calabi’s metric is not projectively induced”, *Tohoku Math. J.*, Vol. 73 no. 1 (2021)
- [26] A. Loi, F. Salis, F. Zuddas, “A characterization of complex space forms via Laplace operators”, *Abh. Math. Semin. Univ. Hambg.* 90 (2020), no. 1, 99-109
- [27] A. Loi, F. Zuddas, “Partially regular and cscK metrics”, *Int. J. Math.*, Vol. 31 No. 10, pp. 2050079 (2020)
- [28] A. Loi, F. Salis, F. Zuddas, “Extremal Kahler metrics induced by finite or infinite dimensional complex space forms”, *The Journal of Geometric Analysis* 31 (2021), 7842-7865
- [29] R. Musina, F. Zuddas, “Many closed K-magnetic geodesics on S^2 ”, *Manuscripta Mathematica* 168, 203-223 (2022)
- [30] A. Loi, F. Salis, F. Zuddas, “Kaehler-Ricci solitons induced by infinite dimensional complex space forms”, *Pacific Journal of Mathematics*, Vol. 316 No. 1 (2022) 183-205
- [31] A. Loi, F. Salis, F. Zuddas, “On canonical radial Kahler metrics”, *Osaka J. Math.* 60 (3), 545-554 (2023)
- [32] A. Loi, F. Zuddas, “Some characterizations of the complex projective space via Ehrhart polynomials”, *Int. J. Math.*, Vol. 35, (02), 2350108 (2024)

PROCEEDINGS

- [1] F. Zuddas, “Canonical metrics on some domains of C^n ”, *Actes du Séminaire de Théorie Spectrale et Géométrie de l’Institut Fourier, Université de Grenoble*, Vol. 27 (200-2009), 127-139.
- [2] A. Loi, F. Zuddas, “Explicit symplectic coordinates on Kaehler manifolds”, *Proceedings of the workshop “New perspectives in differential geometry: special metrics and quaternionic geometry in honour of Simon Salamon (Rome, 16-20 Novembre 2015), Springer-INdAM.*

PREPRINTS

- “Kaehler duality and projective embeddings”, joint with A. Loi and R. Mossa (2024)
- “Universal embeddings of flag manifolds and rigidity phenomena”, joint with A. Loi and R. Mossa (2025)
- “On the Bergman Metric of Cartan–Hartogs Domains”, joint with A. Loi and R. Mossa (2025)
- “The polydisk theorem for Hartogs domains over symmetric domains”, joint with A. Loi and R. Mossa (2025)

MAIN TALKS AS INVITED SPEAKER

- “Alcuni risultati di finitezza per gruppi con entropia algebrica limitata”, 29/09/04, Levico Terme (TN) – at the workshop “Progressi recenti in geometria reale e complessa”.

- “Le lemme de Margulis”, 14/09/05, Section de Mathématiques, Université de Genève.
- “Entropies des groupes et actions sur les graphes”, 30/11/05, Université Claude Bernard (Lione), at the workshop “Groupes, Géométrie et logique”.
- “Due problemi sull’entropia dei gruppi iperbolici”, 14/12/05, University of Cagliari.
- “A finiteness theorem for co-bounded quasi-actions”, 04/07/06, Torino, at the workshop UMI-SMF “Mathematics and its applications”.
- “Immersioni simplettiche in spazi di forme complessi”, 29/06/07, at the Department of Mathematics of the University of Cagliari
- “Geometria Riemanniana dei domini di Hartogs, 28/09/07, at the Department of Mathematics of the University of Cagliari.
- Cycle of seminars on the Kaehler-Ricci flow “Il flusso di Kaehler-Ricci”, January 2008, for the course of Geometric Analysis, Department of Mathematics (University of Parma)
- “Métriques canoniques sur certaines domaines de l’espace euclidéen complexe”, 01/04/09, Institut Fourier (Grenoble), Séminaire de Théorie Spectrale et Géométrie.
- Cycle of seminars on toric manifolds “Minicorso sulle varietà toriche”, February-March 2010, at the Department of Mathematics of the University of Cagliari.
- “Chow stabilità asintotica di fibrati proiettivizzati e scoppiamenti”, 18/10/10, Levico Terme (TN) – workshop “Progressi recenti in geometria reale e complessa”.
- Short course on Lie algebras representations “Rappresentazioni di gruppi e di algebre di Lie” for PhD students in Mathematics, University of Cagliari (February/March 2015)
- “Symplectic invariants of hermitian symmetric spaces” 22/09/15, at Seminario di Matematica, Scuola Normale Superiore di Pisa.
- “Reproducing kernels in Kaehler geometry” 20/06/16, INdAM Intensive Period “Hypercomplex Function Theory and Applications (Firenze)
- “Projectively induced Kaehler metrics” 24/02/17, at the Workshop “Varietà reali e complesse: geometria, topologia e analisi armonica”, Scuola Normale Superiore di Pisa
- “Duality and projective embeddings” 25/06/24, at the Workshop “Complex and symplectic geometric workshop”, University of Cagliari

ORGANIZATION OF EVENTS

- Workshop “Two days of geometry in honour of Giusi D’Ambra”, Cagliari, 16-17 febbraio 2018
- Workshop “Dynamical methods in Algebra, Geometry and Topology”, Udine, 4-6 luglio 2018

OTHER ACADEMIC ACTIVITIES

- since 16/05/2017 : Member of the PhD board in Mathematics and Computer Science of the University of Cagliari
- 06/03/2018: Member of the Final Exam Committee of the XXX PhD Course in Mathematics and Computer Science
- 23/07/2018 to September 2019: member of “Commissione pratiche studenti” for the Bachelor’s degree in Computer Science of the University of Cagliari

SUPERVISED THESES

“Existence of Kahler-Einstein metrics on compact complex manifolds” (Carlo Scarpa, Bachelor’s degree in Mathematics, University of Udine)

TEACHING ACTIVITY

A.A. 2001/2002 - A.A. 2007/2008 Teaching assistance for the courses “Geometria 1” and “Geometria 2” (Professor: Giuseppina D’Ambra), Bachelor’s degree in Mathematics, University of Cagliari

A.A. 2006/2007 e A.A. 2007/2008 Teacher of the preparatory courses for the Bachelor’s degree in Mathematics, University of Cagliari

A.A. 2007/2008 Teaching assistance for the courses “Geometria Differenziale” and “Geometria Superiore” (Professor: Claudio Arezzo), Bachelor’s degree in Mathematics, University of Parma

A.A. 2008/2009 Teaching assistance at the courses “Geometria Differenziale”, “Geometria Superiore” and “Complementi di Variabile Complessa” (Professor: Claudio Arezzo), Bachelor’s degree in Mathematics, University of Parma; Teaching assistance for the e-learning course “Geometria A”, Bachelor’s degree in engineering, University of Parma

A.A. 2009/2010 Teaching assistance at the courses “Complementi di Variabile Complessa”, “Geometria Superiore” (Professor: Claudio Arezzo) and “Geometria Classica” (Professor: Lucia Alessandrini), Bachelor’s degree in Mathematics, University of Parma; Teaching assistance for the course “Geometria”, Bachelor’s degree in architecture, University of Parma

A.A. 2010/2011 Lecturer of the Course “Geometria 2”, Bachelor’s degree in Mathematics, University of Parma

A.A. 2011/2012 Teacher of the preparatory courses for the Bachelor’s degree in Civil engineering and architecture, University of Udine; lecturer of the course “Algebra Lineare”, Bachelor’s degree in Civil engineering, Electronics engineering and Management engineering, University of Udine

A.A. 2012/2013 – A.A. 2016/2017 Lecturer of the Course “Algebra Lineare”, Bachelor’s degree in Electronics engineering and Management engineering, University of Udine

A.A. 2014/2015 and A.A. 2015/2016 Lecturer of the second part of the course “Istituzioni di Geometria Superiore”, Bachelor’s degree in Mathematics, University of Udine

A.A. 2016/2017 - A.A. 2025/2026 Lecturer of the course “Geometria e Algebra”, Bachelor’s degree in Biomedical engineering, University of Cagliari

A.A. 2017/2018 and A.A. 2018/2019 Lecturer of the course “Matematica Discreta”, Bachelor’s degree in Computer Science, University of Cagliari

A.A. 2019/2020 - A.A. 2025/2026 Lecturer of the course “Matematica 2”, Bachelor’s degree in Chemistry, University of Cagliari