Curriculum Vitae

Vassili Nestoridis

Affiliation

Department of Mathematics
National and Kapodistrian University of Athens (or simply University of Athens)
Panepistimioupolis, Athens 157 84, Greece.
E-mail: vnestor@math.uoa.gr

Date and place of birth

1950, Athens, Greece

Research interests

Harmonic and Complex Analysis of one variable, Approximation, Universality.

Education

1978: Ph.D in Mathematics, University of Athens, Greece.

1977: Doctorat de troisième cycle, Grenoble, France

1974: D.E.A. in Functional Analysis, Grenoble, France.

1973: Undergraduate studies in Pure Mathematics, Grenoble, France.

1972: Four years degree in Mathematics, University of Athens, Greece.

Academic Positions

Current Academic Position:

Emeritus Professor of Mathematics, University of Athens, Greece.

Previous Academic Positions:

1. Visiting Assistant Professor, University of Washington, Seattle, 1978-1979.

2. Researcher, National Research Foundation of Greece, 1979-1980.

3. Lecturer, Department of Mathematics, University of Athens, 1980-1985.

4. Visiting Lecturer, Department of Mathematics, University of Crete, 1982-1985.

5. Visiting Assistant Professor, University of Tennessee, Knoxville and University of Rochester, 1983-1984.

6. Assistant and Associate Professor, Department of Mathematics, University of Crete, 1985-1997.

7. Associate Professor and Professor, Department of Mathematics, University of Athens, 1997-2017.

• Frequent visits for six months or less at University Paris XI (Orsay) and member of "Equipe d' Analyse Harmonique".

• Visiting Professor at the Department of Mathematics, Lille, France, 2008.

• Several visits for one semester as Visiting Professor, University of Cyprus, Cyprus (1999–today).

Grants and Awards

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1. Conference Mathematical Analysis in Athens 2017 in honour of Katavolos and Nestoridis.

2. Conference in Universal Functions in honour of Vassili Nestoridis, University of Crete, May 18-22, 2015.

3. N. Artemiades prize, Academy of Athens, Greece, 2012.

4. Pythagoras II, "Universality, Hypercyclicity and Operator Algebras", 2005–2007. Scientific responsible.

5. TMR Network HARP (Harmonic Analysis and Related Problems), 2002–2006. Member of the research group.

6. Research Project "Kapodistrias", University of Athens, 1997-2010.

Research under my supervision

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1. I. Papadoperakis (Ph.D): University of Crete, 1994. Currently Professor at the agricultural University of Athens.

- Papadoperakis, I., Weak star limits of probability measures of special type Math. Proc. Cambridge Philos. Soc. 127 (1999) no1, 173-201.

- Papadoperakis, I., Families of congruent curves and applications. Mathematika 46 (1999), no2, 241-252

2. G. Costakis (Master Thesis): University of Athens, 2000. Currently Associate Professor at the University of Crete.

- Costakis, G., Some remarks on universal functions and Taylor series. Math. Proc. Cambridge Philos. Soc. 128 (2000), no1, 157-175.

- Costakis, G., Melas, A., On the range of universal functions. Bull. London Math. Soc. 32 (2000), no4, 458-464.

3. V. Vlachou (Ph.D): University of Athens, 2002. Currently Professor at the University of Patras.

- Vlachou, V., A universal Taylor series in the doubly connected domain $\mathbb{C}\backslash\{1\}$. Complex Var. Theory Appl. 47 (2002), no2, 123-129.

- Vlachou, V., On some classes of universal functions. Analysis (Munich) 22 (2002), no2, 149-161.

- Vlachou, V., Coincidence of two classes of universal Laurent series. Complex Var. Theory Appl. 47 (2002), no11, 1045-1053.

4. C. Papadimitropoulos (Master Thesis): University of Athens, 2005. Instructor at the Law School of University of Athens.

- Nestoridis, V., Papadimitropoulos, C., Abstract theory of universal series and an application to Dirichlet series. C. R. Math. Acad. Sci. Paris 341 (2005), no9, 539-543.

- Bayart, F., Grosse-Erdmann, K.-G., Nestoridis, V., Papadimitropoulos, C., Abstract theory of universal series and applications. Proc. Lond. Math. Soc. (3) 96 (2008), no2, 417-463.

- Papadimitropoulos, C., Common dense hypercyclic manifolds for translation and dilation operators. Complex Var. Elliptic Equ. 53 (2008), no4, 383-390.

5. N. Tsirivas:
(a) Master Thesis, University of Athens, 2004.
(b) Ph.D, University of Athens, 2008. Currently Instructor at University of Patras.

- Tsirivas, N., Boundedness, regularity and smoothness of universal Taylor series. Arch. Math. (Basel) 87 (2006), no5, 427-435.

- Diamantopoulos, E., Mouratides, C., Tsirivas, N., Universal Taylor series on unbounded open sets. Analysis (Munich) 26 (2006), no3, 323-336.

- Tsirivas, N., Simultaneous approximation by universal series. Math. Nachr. 283 (2010), no6, 909-920.

- Tsirivas, N., Universal Faber and Taylor series on an unbounded domain of infinite connectivity. Complex Var. Elliptic Equ. 56 (2011), no6, 533-542.

- A. Mouze, V. Nestoridis, I. Papadoperakis, N. Tsirivas, *Determination of a universal series*, CMFT 12 (2012), no 1, 173-199.

6. S. Glenis (Master in Education of Mathematics): University of Athens, 2005. Currently teacher of mathematics at the experimental school of the University of Athens.

- Spyros Glenis (Greece), Comparison of Geometric Figures, The Montana Mathematics Enthusiast, Vol5, Nos.2 and 3 (July 2008) pp. 199-214.

7. E. Diamantopoulos (Post-doc fellow): University of Athens, 2005-2007. Currently teacher of mathematics at public high school.

- Diamantopoulos, E., Mouratides, C., Tsirivas, N., Universal Taylor series on unbounded open sets. Analysis (Munich) 26 (2006), no3, 323-336.

- Diamantopoulos, E., Kariofillis, C., Mouratides, C., Universal Laurent series in finitely connected domains. Arch. Math. (Basel) 91 (2008), no2, 145-154.

8. C. Mouratides (Post-doc fellow): University of Athens, 2005-2007. Currently Professor at the University of Kastoria.

- Diamantopoulos, E., Mouratides, C., Tsirivas, N., Universal Taylor series on unbounded open sets. Analysis (Munich) 26 (2006), no3, 323-336.

- Diamantopoulos, E., Kariofillis, C., Mouratides, C., Universal Laurent series in finitely connected domains. Arch. Math. (Basel) 91 (2008), no2, 145-154.

9. A. Bacharoglou (Ph.D): University of Thessaloniki, 2010. Currently teacher of mathematics at the American Farm School of Thessaloniki and Instructor at Aristotel University of Thessaloniki.

- Bacharoglou, A. G., Universal Taylor series on doubly connected domains, Results Math. 53 (2009), no1-2. 9-18.

- Bacharoglou, A. G., Approximation of probability distributions by convex mixtures of Gaussian measures. Proc. Amer. Math. Soc. 138 (2010), no7, 2619-2628.

- Bacharoglou, A. G., Stamatiou, G., Universal harmonic functions on the hyperbolic space. Colloq. Math. 121 (2010), no1, 93-105.

10. K. Makridis:
(a) Master Thesis, University of Athens, 2013.
(b) Ph.D 2017, University of Athens.

- Makridis, K., Nestoridis, V., Sets of uniqueness of uniform limits of polynomials in several complex variables. (arxiv: 1304.5511.) J. Math. Anal. Appl. 432 (2015), no.2, 994-1004.

- Makridis,K; Nestoridis,V, Simultaneous Universal Padé Approximation. arXiv:1506.01363.

- Makridis,K, Simultaneous Universal Pade-Taylor Approximation. arXiv:1503.02856.
- Eskenazis, A., Makridis, K., Topological genericity of nowhere differentiable functions in the disc and polydisc algebras. (arxiv: 1311.1176.) J. Math. Anal. Appl. 420 (2014), no.1, 435-446.
- K. Kavvadias, K. Makridis, Nowhere differentiable functions with respect to the position (arxiv: 1701.04875)

11. Gr. Fournodavlos (Graduate student): University of Athens, 2011. Ph.D University of Toronto, currently post doc fellow, University of Cambridge and Paris.

- Fournodavlos, G., On a characterization of Arakelian sets. Izv. Nats. Akad. Nauk. Armenii Mat. 47 (2012), no6, 3-18.
- Fourodavlos, G., Nestoridis, V., Generic approximation of functions by their Padé approximants. J. Math. Anal. Appl. 408 (2013), no2, 744-750.

12. Th. Douvropoulos (Graduate student): University of Athens, 2012. Ph.D student at the University of Minnesota, currently post-doc fellow in Paris VII

- Douvropoulos, Th., Simultaneous generic approximation by the iterates of the Cesaro operator. arxiv: 1211.0783.

13. I. Zadik (Undergraduate student): University of Athens, 2012-2013. Later graduate student at the University of Cambridge and MIT and currently post doc fellow at Courant.

- Nestoridis, V., Zadik, I., Padé approximants, density of rational functions in $A^\infty(\Omega)$ and smoothness of the integration operator. (arxiv: 1212.4394.) J. Math. Anal. Appl. 423 (2015), no.2, 1514-1539.
- Zadik, I., Universal Padé approximants and their behaviour on the boundary. Monatsh. Math. 182 (2017) no.1, 173 - 193.

14. A. Eskenazis (Undergraduate student): University of Athens, 2013. Currently post doc fellow at Cambridge and Paris VI.

- Eskenazis, A., Topological genericity of nowhere differentiable functions in the disc algebra. (arxiv: 1311.0142.) Arch. Math. (Basel) 103 (2014), no.1, 85-92.
- Eskenazis, A., Makridis, K., Topological genericity of nowhere differentiable functions in the disc and polydisc algebras. (arxiv: 1311.1176.) J. Math. Anal. Appl. 420 (2014), no.1, 435-446.

15. E. Bolkas (undergraduate student): University of Athens, 2015. Admitted as Ph.D student at Princeton University.

- Bolkas E.; Nestoridis V.; Panagiotis C., Non extendability from any side of the domain of definition as a generic property of smooth or simply continuous functions on an analytic curve, arxiv:1511.08584.

- Bolkas E., Nestoridis V., Panagiotis C, Papadimitrakis M., One sided extendability and p - continuous analytic capacities,Journal of Geometric Analysis 29 (2019), no 2, 1369 - 1406, see also arxiv: 1606.05443.

16. C. Panagiotis (undergraduate student): University of Athens, 2015. Currently Ph. D student at the University of Warwick.

- Bolkas E.; Nestoridis V.; Panagiotis C., Non extendability from any side of the domain of definition as a generic property of smooth or simply continuous functions on an analytic curve, arxiv:1511.08584.

- Bolkas E., Nestoridis V., Panagiotis C, Papadimitrakis M., One sided extendability and p - continuous analytic capacities, Journal of Geometric Analysis 29 (2019), no 2, 1369 - 1406, see also arxiv: 1606.05443.

17. N. Georgakopoulos: undergraduate student at the University of Athens, 2016. Currently graduate student at the University of Chicago.

- Georgakopoulos N., Extensions of the Laurent Decomposition and the spaces $A^p(\Omega)$, arxiv: 1605.08289.

- Georgakopoulos N., Holomorphic extendability in $\mathbb{C}^n$ as a rare phenomenon, arxiv: 1611.05367.

- Georgakopoulos N., Mastrantonis V., Nestoridis V., Relations of the spaces $A^p(\Omega)$ and $C^p(\partial\Omega)$. Results Math. 73 (2018), no. 2, Art. 86, 13 pp.

18. V. Mastrantonis: undergraduate student at the University of Athens, 2016. Graduate student at Cambridge and Maryland.

- Mastrantonis V., Panagiotis C., Nowhere differentiable functions of analytic type on products of finitely connected planar domains, Monatsh Math (2017), to appear, see also arxiv: 1608.080235.

- Mastrantonis V., Relations of the spaces $A^p(\Omega)$ and $C^p(\partial\Omega)$, arxiv: 1611.02971.

- Georgakopoulos N., Mastrantonis V., Nestoridis V., Relations of the spaces $A^p(\Omega)$ and $C^p(\partial\Omega)$. Results Math. 73 (2018), no. 2, Art. 86, 13 pp.

19. V. Liontou: undergraduate student at the University of Athens, 2016. Currently graduate student at the University Of Toronto

- Liontou V., Nestoridis V., One sided conformal collars and the reflection principle, arxiv: 1612.00177.

- Liontou V., Nestoridis V., Jordan domains with a rectifiable arc in their boundary, Ann. Math. Qué, to appear, see also arxiv: 1705.02254.

20. M. Siskaki: graduate student at the University of Athens, 2016. Currently graduate student at University of Illinois at Urbana–Champaign

- Siskaki M., Boundedness of derivatives and anti-derivatives of holomorphic functions as a rare phenomenon, J. Math. Anal. Appl. 462 (2018), no. 2, 1073-1086, see also arxiv: 1611.05386.

21. D. Moschonas, graduate student at the University of Athens, 2017.

- Moschonas D., Nestoridis V., On spaces of holomorphic functions with bounded or continuous up to the boundary derivatives. Bull. Hellenic Math. Soc. 62 (2018), 44-60, see also arxiv:1709.00276
- Moschonas D., Nestoridis V., Terezakis A., Open, convex, unbounded sets in normed spaces, arxiv:1710.10656

22. A. Kampoukou, graduate student at the University of Athens, 2017.

- Kampoukou A., Nestoridis V., A remark on projective limits of function spaces. Bull. Hellenic Math. Soc. 62 (2018), 26-30, see also arxiv: 1704.05780

23. A. Terezakis, undergraduate student at the University of Athens, 2017. Currently graduate student at the University of Athens

- Moschonas D., Nestoridis V., Terezakis A., Open, convex, unbounded sets in normed spaces, arxiv:1710.10656

24. D. Lygkonis, undergraduate student at the University of Athens, 2017. Currently graduate student at the University of Warwick.

- Lygkonis D., Nestoridis V., Localized versions of function spaces and generic results. J. Math. Anal. Appl. 465 (2018), no. 2, 825-838, see also arxiv:1711.08431

25. A. Stavrianidi, undergraduate student at the University of Athens, 2017. Currently graduate student at the Stanford.

- V. Nestoridis, A. G. Siskakis, A. Stavrianidi, S. Vlachos, Generic non - extendability and total unboundedness in function spaces, JMAA 475 (2019), no. 2, 1720 - 1731, see also arxiv:1811.04408
- N. Biehler, V. Nestoridis, A. Stavrianidi, Algebraic genericity of frequently universal harmonic functions on trees, submitted, see also arxiv:1908.09767

26. S. Vlachos, undergraduate student at the University of Athens.

- V. Nestoridis, A. G. Siskakis, A. Stavrianidi, S. Vlachos, Generic non - extendability and total unboundedness in function spaces,. JMAA 475 (2019), no. 2, 1720 - 1731, see also arxiv:1811.04408

27. K. Maronikolakis, undergraduate student at the University of Athens. Currently graduate at the University of Athens. In September 2020 he starts doctoral studies at UCD, Ireland.

- K. Maronikolakis, V. Nestoridis, An extension of the universal power series of Seleznev, submitted, see also arxiv:1905.10556

28. N. Biehler, undergraduate student at the University of Athens.

- N. Biehler, V. Nestoridis, A. Stavrianidi, Algebraic genericity of frequently universal harmonic functions on trees, submitted, see also arxiv:1908.09767

29. G. Kotsovolis, undergraduate student at the University of Athens. He got offers for graduate studies from Chicago, Princeton, Harvard and elsewhere.

- K. Kioufala , G. Kotsovolis, V. Nestoridis, Universal Taylor series on products of planar domains, CASY, to appear, see also arxiv:1909.03521
- G. Kotsovolis, Partially smooth universal Taylor series on products of simply connected domains, submitted, see also arxiv:1910.01759

Recent Conference Presentations

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1. *New Developments in Complex Analysis and Function Theory*, July 2018, University of Crete, Heraklion, Greece (Plenary talk)

2. *International Conference in Complex Analysis, Potential Theory and Applications*, in honor of St. Gardiner, Dublin Ireland, June 2018 (Keynote speaker)

3. *International Conference dedicated to the memory of Sergey Mergelyan*, Yerevan, Armenia, May 2018

4.*Universality, Extendability, the spaces $C^p(\partial\Omega)$ and $A^p(\Omega)$ and the p - continuous analytic capacity* (Invited lecture). Conference on New Trends in Approximation Theory, in memory of Andrée Boivin, Fields Institute, Toronto, July 25 - 29, 2016.

5. *a) From inner functions and Hardy spaces to Zygmund-Rogosinski problem and universal Taylor series.*
b) Universal series and further developments.
Conference in Universal Functions in honour of Vassili Nestoridis, University of Crete, May 18-22, 2015.

6. *a) Uniform limits of polynomials on polydiscs and sets of uniqueness* (Invited talk).

b) Some universality results concerning harmonic functions on trees (Invited talk).
Conference on Universality, Kent State University, April 12-14, 2014.

7. *Approximation sphérique.*
Premieres Journées du GDR "Analyse Fonctionelle, Harmonique et Probabilités",
Université Paris-Est, Marne la Vallée, October 29–31, 2012.

8. *Pichorides' research program related to the problem of Rogosinski* (invited lecture).
Complex and Harmonic Analysis, Conference in honour of Manolis Katsoprinakis,
Heraklion, Crete, September 17-20, 2012.

9. *From universal Taylor series to Universal Padé approximants, the chordic metric* χ*, and Mergelyan's and Arakelian's theorems with respect to* χ (invited lecture).
14th Panhellenic Conference in Analysis, Patra, May 18–19, 2012.

10. *Universal Padé approximants and generic approximation of functions by their Padé approximants.*
International Conference in Harmonic Analysis and Approximations, Tsaghkadzor
(Armenia), September 10–17, 2011.

11. *Extensions of the disc algebra* (invited lecture).
Complex Analysis and Potential Theory, Montreal, June 20–23, 2011.

12. *Universal Taylor series and recent developments* (invited lecture).
Universal Functions and Hypercyclic Operators, Universität Trier, April 2008.

13. *Universal series in* $\bigcap_{p>1} l^p$ *and An improvement of the universality of the geometric series* (invited lectures).
Complex Approximation and Universality, Oberwolfach, February 2008.

Recent seminar talks

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1. *A function algebra providing new Mergelyan type theorems in several complex variables*
Athens, Crete, Patras, Thessaloniki, Marseille, Valentia, Cyprus, 2019.
2. *One valued primitives and the F. M. Riesz theorem*
university of Athens, September 2016.
3. *Regularity of the integration operator* (joint with I.Zadik).
Analysis seminar, Caltech, April 30, 2014.
4. *Approximants de Padé et regularité de l'opérateur d'integration.*
Seminaire d' Analyse Harminique, Orsay, June 17, 2013.

5. *Universality results for harmonic functions on trees.*
Analysis Seminar, University of Athens, May 22, 2013.

6. *Séries Universelles.*
Seminaire d'Analyse Fonctionelle, Université Paris VI (Jussieu), March 21, 2013.

Other recent seminar or colloquium talks

- Université de Marseille, France.
- Université Laval, Quebec, Canada.
- Université de Montreal, Montreal, Canada.
- West University, London, Ontario, Canada.
- University of Rochester, N.Y., U.S.A.
- Kent State University, Ohaio, U.S.A.
- Texas A and M, Texas, U.S.A.
- University of Washington, Seattle, WA, U.S.A.
- University of Cyprus, Nicosia, Cyprus.

Teaching experience

- Université de Grenoble, France, 1974-1977: Assistant Associé.
- University of Washington, U.S.A., 1978-1979: Visiting Assistant Professor.
- University of Tennessee, U.S.A., Fall 1983-1984: Visiting Assistant Professor.
- University of Rochester, U.S.A., Spring 1983-1984: Visiting Assistant Professor.
- University of Athens, Greece, 1980-1983: Lecturer.
- University of Crete, Greece, 1982-1985: Visiting Lecturer.
- University of Crete, Greece, 1985-1997: Regular faculty member.
- University of Athens, Greece, 1997-2017: Regular faculty member.
- University of Cyprus, Cyprus, 5 semesters in the period 1999-today: Visiting professor.
- University of Athens, Greece, 2017-today: Emeritus Professor.

Teaching evaluations were always above average and several times excellent. Various courses taught inside and outside Mathematical Analysis; in recent years Calculus, Foundations of Mathematics, Undergraduate Complex Analysis, Graduate Complex Analysis (one variable), special topics in Analysis.

Other activities

2018: Research in Pairs at Oberwolfach for three weeks in November - December 2018 on Several Complex Variables with Falcó, Gauthier and Manolaki.

2017: Research in Pairs at CIRM, Marseille, Lumini, France for three weeks with Aron and Maestre. S. Charpentier joined us.

2016: Research in Pairs at Oberwolfach for three weeks in October 2016 on Complex Geometry with P. M. Gauthier and A. Papadopoulos.

2015: Research in Pairs at Oberwolfach on Universality and related topics for one month, June 2015 with R.Aron, P.Gauthier and M.Maestre.

2014: Invitation by R.Aron at Kent State University, USA for 3 weeks.

2014: Invitation by P.Gauthier at the Université de Montreal, CA for 3 months.

2006–2010: Responsible for the preparation of students for the International Mathematical Olympiads and organization of the competition for the selection of the Hellenic national team. Member of the graduate committee, the committee for the future direction of the Department and the Colloquium committee at the University of Athens and to various committees at the University of Crete in the past. External examiner for the thesis of I.Tamptse at the Université de Montreal under the direction of P. Gauthier. External examiner for the thesis of F. Sharifi at Western University, London, Ontario, Canada under the direction of G. Sinnamon and P. Gauthier.

Publications

95. N. Biehler, V. Nestoridis, A. Stavrianidi, *Algebraic genericity of frequently universal harmonic functions on trees*, submitted, see also arxiv:1908.09767

94. K. Kioufala , G. Kotsovolis, V. Nestoridis, *Universal Taylor series on products of planar domains*, CASY, to appear, see also arxiv:1909.03521

93. K. Maronikolakis, V. Nestoridis, *An extension of the universal power series of Seleznev*, submitted, see also arxiv:1905.10556

92. Abakoumov, Müller, Nestoridis, *Families of universal Taylor series depending on a parameter*, New trends in approximation theory, 201 - 213 Fields Inst. Commun. 81 Springer, NY 2018

91. Falcó J., Gauthier P.M., Manolaki M., Nestoridis V., *A function algebra providing new Mergelyan type theorem in several complex variables*, see also arXiv:1901.01339.

90. Nestoridis V., *A note on single valued primitives*, Bull. Hellenic Math. Soc. 63 (2019), 13-16.

89. V. Nestoridis, A. G. Siskakis, A. Stavrianidi, S. Vlachos, *Generic non - extendability and total unboundedness in function spaces*, JMAA 475 (2019), no. 2, 1720 - 1731

88. Nestoridis V., *From Universality to generic non - extendability and total unboundedness of holomorphic functions*, Anal. Math. Phys. 9 (2019), no2, 887-897.

87. Manolaki M., Nestoridis V., *One-sided extendability of bounded functions*, in preparation

86. Aron R., Charpentier St., Gauthier P., Maestre M., Nestoridis V., *Extendability and Domains of Holomorphy in Infinite Dimensional Spaces*, Ann. Polon. Math. 123 (2019) no. 1, 31 - 41

85. Liontou V., Nestoridis V., *Jordan domains with a rectifiable arc in their boundary*, Ann. Math. Qué., to appear, see also arxiv: 1705.02254.

84. Falcó J., Nestoridis V., *Rational approximation on $A^{\infty}(\Omega)$*, Studia Mathematica 248 (2019), no1, 93-107.

83. Falcó J., Nestoridis V., Zadik I., *A note on the density of rational functions in $A^{\infty}(\Omega)$*, New trends in approximation theory, 2735, Fields Inst. Commun., 81, Springer, New York, 2018.

82. Moschonas D., Nestoridis V., *On spaces of holomorphic functions with bounded or continuous up to the boundary derivatives.* Bull. Hellenic Math. Soc. 62 (2018), 44-60.

81. Nestoridis V., *Universal Taylor series without Baire and the influence of J.-P. Kahane.* Anal. Math. 44 (2018), no. 2, 237-249.

80. Charpentier St., Nestoridis V., *On the boundary behaviour of derivatives of functions in the disc algebra.* C. R. Math. Acad. Sci. Paris 356 (2018), no. 7, 732-736.

79. Lygkonis D., Nestoridis V., *Localized versions of function spaces and generic results.* J. Math. Anal. Appl. 465 (2018), no. 2, 825-838.

78. Georgakopoulos N., Mastrantonis V., Nestoridis V.,*Relations of the spaces $A^p(\Omega)$ and $C^p(\partial\Omega)$.* Results Math. 73 (2018), no. 2, Art. 86, 13 pp.

77. Hatziafratis T., Kioulafa K., Nestoridis V., *On Bergman type spaces of holomorphic functions and the density, in these spaces, of certain classes of singular functions.* Complex Var. Elliptic Equ. 63 (2018), no. 7-8, 1011-1032.

76. Kampoukou A., Nestoridis V., *A remark on projective limits of function spaces.* Bull. Hellenic Math. Soc. 62 (2018), 26-30.

75. Nestoridis V., *Domains of Holomorphy*, Ann. Math. Que. 42 (2018), no. 1, 101-105.

74. Liontou V., Nestoridis V., *One sided conformal collars and the reflection principle*, arxiv: 1612.00177.

73. Falcó J., Nestoridis V., *A Runge type theorem for product of planar domains*, Rev. R. Acad. Cienc. Exactas Fís. Nat. Ser. A Math. RACSAM 111, (2017) no. 4, 1147-1155.

72. Gauthier. P. M., Nestoridis V., Papadopoulos A., *Spherical arc - length as a global conformal parameter for analytic curves in the Riemann sphere*, J. Math. Anal. Appl. 455 (2017), no. 1, 742-749.

71. Nestoridis V., *One valued primitives and the F. and M. Riesz theorem*, arxiv: 1610.01365.

70. Aron R., Bayart F., Gauthier. P. M., Maestre M., Nestoridis V., *Dirichlet approximation and Universal Dirichlet series*, Proc. Amer. Math. Soc. 145 (2017), no. 10, 4449-4464.

69. Bolkas E., Nestoridis V., Panagiotis C., Papadimitrakis M. *One sided extendability and p - continuous analytic capacities*, Journal of Geometric Analysis 29 (2019), no 2, 1369 - 1406, see also arxiv: 1606.05443.

68. Bolkas E., Nestoridis V., Panagiwtis C., *Non extendability from any side of the domain of definition as a generic property of smooth or simply continuous functions on an analytic curve*, arxiv: 1511.08584.

67. Makridis K., Nestoridis V, *Simultaneous Universal Padé Approximation* arxiv: 1506.01363.

66. Abakoumov E, Nestoridis V, Picardello M., *Universal properties of harmonic functions on trees.* J.M.A.A. 445 (2017) no.2, 1181 - 1187.

65. V.Nestoridis; A.Papadopoulos, *Arc length as a conformal parameter for locally analytic curves* J.M.A.A. 445 (2017) no. 2, 1505 - 1515.

64. P.M.Gauthier; V.Nestoridis, *Density of polynomials in classes of functions on products of planar domains.* J. Math. Anal. Appl. 433 (2016), no.1, 282-290.

63. N.J.Daras; V.Nestoridis, *Universal Taylor series on convex subsets of $\mathbb{C}^n$.* Complex Var. Elliptic Equ. 60 (2015), no.11, 1567-1579.

62. S.Charpentier; V.Nestoridis; F.Wielonsky, *Generic properties of Padé approximants and Padé universal series.* Math. Z. 281 (2015), no.1-2, 427-455.

61. K.Makridis; V.Nestoridis, *Sets of uniqueness for uniform limits of polynomials in several complex variables.* J. Math. Anal. Appl. 432 (2015), no.2, 994-1004.

60. P.M.Gauthier; V.Nestoridis, *Conformal extensions of functions defined on arbitrary subsets of Riemann surfaces.* Arch. Math. (Basel) 104 (2015), no.1, 61-67.

59. V. Nestoridis and I. Zadik, *Padé approximants, density of rational functions in $A^\infty(\Omega)$ and smoothness of the integration operator.* J. Math. Anal. Appl. 423 (2015), no.2, 1514-1539.

58. N. Daras, G. Fournodavlos and V. Nestoridis, *Universal Padé approximants on simply connected domains*, submitted.

57. M. Fragoulopoulou, V. Nestoridis, I. Papadoperakis, *Some results on spherical approximation*, Bull. London Math. Soc., 45 (2013), no.6, 1171-1180.

56. V. Nestoridis, N. Papadatos, *An extension of the disc algebra, II*, Complex Variables and Elliptic Equations, 59 (2014) no.7, 1003-1015.

55. N. Daras, V. Nestoridis and Ch. Papadimitropoulos, *Universal Padé approximation of Seleznev type*, Arch. Math. (Basel), 100 (2013) no6, 571–585.

54. M. Lamprecht and V. Nestoridis, *Universal functions as series of rational functions*, Revista Matêmática Complutense, 27 (2014), no1, 225-239.

53. G. Fournodavlos and V. Nestoridis, *Generic approximation of functions by their Padé approximants*, J. Math. Anal. Appl. 408 (2013), no2, 744-750.

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Research description

In the last 20 years I am mainly working on Universality and especially on Universal series. Initially I was interested in Universal Taylor series . In the early 70's W. Luh and independently Chui and Parnes proved the existence of a Taylor series with radius of convergence 1, such that subsequences of its partial sums approximate uniformly any polynomial on any compact set, disjoint with the closed unit disc, with connected complement. This is a universal Taylor series in a weak sense, because the universal approximation is not valid on the boundary. In 1996 I proved the existence of universal Taylor series in a stronger sense, where the universal

approximation was valid also on the boundary (Annales de l'Institut Fourier). The first proof was constructive but a simpler proof was obtained after some months using Baire's category theorem; thus, there is a plethora of universal Taylor series and the phenomenon of universality is topologically generic. The new universal Taylor series were proved to have very wild properties in contrast with the old ones, some of which could be smooth on the boundary. In particular the new universal series lie outside any classical space of functions (Nevanlinna class, etc), they are not Cesaro summable of any order at any point of the boundary and they are not holomorphically extendable (this last property answers, in the affirmative, a conjecture of J. P. Kahane). Since then several mathematicians got interested in the subject. In Greece and Cyprus there are about 30 researchers who obtained universality results. There is some activity on the subject in Germany, France, Spain and Ireland and the group of Paul Gauthier at the University of Montreal, Canada, is working on universality. Stephen Gardiner, in Dublin, had a 4 years program and he uses potential theoretic tools to address questions about properties of Universal Taylor series.

There are several kinds of universal series, e.g. Dirichlet series, Faber series and the universal trigonometric series of Menchoff. A unification was obtained in "Abstract Theory of Universal Series and Applications", (Proceedings of the London Mathematical Society, 2008, see also Comptes Rendus, 2005). This abstract theory covers almost all known examples of universal series and leads to new ones, as for example the universal approximation using fundamental solutions of elliptic operators, or Gaussian distributions and more generally any approximate identity.

In the last years I was also interested in Padé approximants and in replacing the Euclidean metric in the plane by other metrics on some compactifications of the plane, as for instance the chordal metric on the Riemann sphere. Recently I obtained universal approximation by Padé approximants with respect to the chordal metric. This is a new notion of universality, as the Padé approximants are rational functions and may have poles in the finite complex plane. Therefore, using chordal metric they can uniformly approximate on compact sets all rational functions and not only functions with finite complex values. Also the universal functions do not have to be holomorphic but they can be meromorphic. Finally the approximation is valid on arbitrary compact sets and not only on compact sets with connected complement.

Some partial results have been proved concerning the form that the main approximation theorems in Complex Analysis(Runge's, Mergelyan's and Arakelian's theorems) obtain when the usual Euclidean metric is replaced by the chordal one.

We prove universality of Padé Approximants of smooth functions; in order that this universality is generic in the whole space $A^\infty(\Omega)$ we give a sufficient condition on Ω assuring that rational functions with poles off the closure of Ω are dense in $A^\infty(\Omega)$. The same condition implies smoothness of the integration operator even if the boundary of the Jordan domain Ω is not rectifiable. Recently, A. Volberg and collaborators proved that the above condition is in fact a necessary and sufficient condition so that the primitive of all bounded analytic functions are also bounded. Naturally we are led to give the second example (the first such example was given in

the thesis of Mergelyan on 1951 by different and less explicit methods) of a Jordan domain Ω supporting a holomorphic function in $A(\Omega)$, whose antiderivative is even not bounded on Ω. These results in generic form are extended to more general Volterra operators.

Some generic universality results have been obtained regarding harmonic functions on trees (which define martingales on the boundary of the tree).

Extensions of the disc algebra (and of Mergelyan's theorem) on polydiscs in finitely or infinitely many variables have been obtained with respect to the usual Euclidean metric of the plane, as well as with respect to the chordal metric. This is a different approach leading to infinite dimensional holomorphy.

Recently we prove generic non-extendability from any side of the domain of definition of smooth or simply continuous functions on any Jordan arc. This led us to prove that arc length is a global conformal parameter for any analytic curve, and to introduce the p - continuous analytic capacities. More recently, I am interested to define new spaces of analytic functions by requiring that some property holds when we approach only a part of the boundary and not necessarily the whole boundary. This will give generalizations of several well - known spaces, as Hardy and Bergman spaces, A^p and H_p^∞ in one or several variable. Well known generic results, as non - extendability, total unboundness and non - differentiability on the boundary could be extended to these spaces endowed with their natural topologies. Combination of Baire's theorem with Montel's theorem yields that local non - extendability or unboundedness implies the global (total) phenomenon in one or several complex Variables,finitely or infinitely many (Domains of Holomorphy).

We also extended the notion of (frequently) universal martingales on trees to separable Fréchet spaces. Finally in approximation in several complex variables we introduced a new function algebra allowing to obtain more Mergelyan type theorems. As applications we obtained generic universality of Taylor series in several complex variables and especially on products of planar domains.

I close this research description mentioning that at the beginning of my career I worked with Blaschke products and singular inner functions to investigate the invariance by multiplication by z of the connected components in the space of inner functions under uniform topology in the unit disc of the complex plane. In order to assure non-invariance I used an essentially strengthened form of the Carleson condition describing the interpolation sequences. Next I investigated the possibility of representing the interior values of holomorphic functions of the Hardy class in the open unit disc as averages of the boundary values on arcs of the unit circle with respect to the one dimensional Lebesgue measure. This enables one to compute the exact value of the non-conformally invariant BMO norm of any inner function. Further I investigated quantitative estimates of the size of the arc where the average was computed, the possibility to replace Lebesgue measure by other measures, as well as, extensions to several variables. Finally I obtained several partial results towards Rogosinski's problem regarding the angular distribution around the $(C, 1)$ sum of the sequence of partial sums of Taylor series. In particular I showed that for any rational function f regular at the origin the following holds for almost every point z of the plane: The angular distribution around $f(z)$ of the sequence of

partial sums of the Taylor development of f with center 0 computed at z exists and is uniform.

It was my effort to give a negative answer to a question of the late S.K.Pichorides regarding a possible characterization of the rational functions using geometric properties of their partial sums, which was related to Rogosinskis problem, that led me to consider universal Taylor series and strengthen the result of Chui and Parnes and independently Luh . Thus I obtained the universal approximation also on the boundary of the domain of definition, which imposes very wild properties on the universal function and the recent period of my research investigations started (Anales de l Institut Fourier, 1996).