

**CURRICULUM VITAE**  
**Arthur A. Danielyan**  
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**University of South Florida**  
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**CITIZENSHIP**

**U. S. A.**

**EDUCATION**

1976-1981                      Student, Yerevan State University, Summa cum laude  
Diploma (M.Sc.) in mathematics, Advisor S.N. Mergelyan

1981-1984                      Post graduate student in mathematics, the same University

1987, May 27                      Ph.D. in mathematics, Institute of Mathematics of the  
Academy of Sciences of Armenia (then in USSR),  
Advisor: S.N. Mergelyan

**PROFESSIONAL  
EXPERIENCE**

08/07/2013 - to present                      University of South Florida, Assistant Professor

04/06/2012 - 08/07/2013                      University of South Florida, Instructor II  
08/01/2003 - 04/06/2012                      University of South Florida, Instructor

2000 - 2003                      University of Central Florida  
Visiting Instructor

1998 - 2000                      University of South Florida  
Visiting Research Scholar/Adjunct Professor

1994 - 1998                      Moscow Aviation Institute, Senior Lecturer  
Senior Scientific Researcher

12/01/1996-03/01/97                      University of Oldenburg, Germany, Visiting  
Researcher (Supported by DAAD faculty grant)

1996-1998                      Moscow State University (supported by a grant  
from the Russian Foundation for Basic Research).

1989-1994                      Institute of Mathematics of the Armenian Academy  
of Sciences, Scientific Researcher

1990-1994                      Yerevan State University, Senior Lecturer (part time)

### **Teaching Experience at the University of South Florida (Tampa).**

Mass Lecture classes : Life Science Calculus 1 [Enrollment: 180 students], Business Calculus [Enrollment: 180]: College Algebra [Enrollment: 125], Elementary calculus [Enrollment: 80], Calculus I-III, Engineering Calculus I-III, Precalculus Trigonometry, College Algebra, Differential Equations, Bridge to Abstract Mathematics, Complex Variables, Introduction to Topology, Intermediate Analysis I (MAA 4211), Real Analysis I (MAA 5306), Complex Analysis I (MAA 6406). Complex Analysis II (MAA 6407)

### **Teaching Experience at the University of Central Florida (Orlando)**

Calculus 1,2, 3, Engineering Calculus 1,2,3, Differential Equations, Topics in Advanced Calculus, Complex Analysis.

### **Teaching Experience in Moscow and Yerevan**

Mathematical Analysis, Real and Complex Analysis, Topics in Approximation Theory, Differential Equations, Probability Theory, Analytic Geometry, Linear Algebra, Computational Methods, Elementary Mathematics.

### **Organizer of Conferences**

**1. The main (PI) organizer of SEAM 2016 - 32nd Southeastern Analysis Meeting;** March 13-15, 2016, Tampa, Florida. (Supported by an NSF Conference grant, and by a USF grant.)

<http://math.usf.edu/seam-conference/>

**2. The organizer of the invited session “On the Theory of Approximation and Applications”** for 6<sup>th</sup> World Congress of IFNA, University of Athens, Greece. June 25 - July 1, 2012,

### **Ph.D. Committee Member**

1. Sumaya Batwa, Department of Math and Stat., University of South Florida (current).
2. Kumar V. Garapati, Department of Math and Stat., University of South Florida (current).
3. Seyed M. Zoolroshd, Department of Math and Stat., University of South Florida, 2016,
4. Rodney Taylor, Department of Math and Stat., University of South Florida, 2008.
5. John Boncek, Department of Mathematics, University of Central Florida, 2003,
6. Gohar Harutyunyan, Department of Mathematics, Yerevan State University, 1996,

### **Masters Thesis Committee Member**

1. Robert C. Conneli, Department of Math and Stat., University of South Florida, (2017).
2. Mengshu Zhang, Department of Math and Stat., University of South Florida, 2012.
3. Eric-Jan D. DeNooyer, Department of Math and Stat., University of South Florida, 2010.
4. John A. Clark, Department of Math and Stat., University of South Florida, 2008.

I have also been a member of Masters Thesis committee's of several other students at UCF (Orlando) and Yerevan State University.

### **Honors Thesis Examining Committee Member**

1. Nicholas Conde, Department of Math and Stat., University of South Florida, 2016
2. Timothy Freeman, Department of Math and Stat., University of South Florida, 2016
3. Carey Whitehair, Department of Math and Stat., University of South Florida, 2016

**Professional Membership --** Member of American Mathematical Society (AMS)

### **Served as referee for research mathematical journals**

1. Izvestiya Mathematics of Russian Academy of Sciences (Russia);
2. Mathematical Notes (Russia);
3. Journal of Approximation Theory (USA);
4. Computational Methods and Function Theory (USA-Germany).
5. The Journal of the Indian Mathematical Society (India).
6. ANALYSIS International mathematical journal of analysis and its applications
7. Journal of Complex Analysis

## **Reviewer for Mathematical Reviews (American Mathematical Society).**

### **College and Departmental Committee Services at USF**

2016-17, USF College of Arts and Sciences, Faculty Development Committee, Chair  
2015-16, USF College of Arts and Sciences, Faculty Development Committee, Member  
2015-16, USF Math and Stat Department, Nagle Lecture Series Committee, Member  
2014-15, USF Math and Stat Department, Colloquium Committee, Chair  
2014-15, USF Math and Stat Department, Library Committee, Co-Chair  
2013-14, USF College of Arts and Sciences, Professional Develop. Ad Hoc Committee, Member  
2013-14, USF Math and Stat Department, Nagle Lecture Series Committee, Chair  
2012-13, USF Math and Stat Department, Instructor Search Committee, Member  
2011-12, USF Math and Stat Department, Instructor Search Committee, Member  
2010-11, USF College of Arts and Sciences, Professional Develop. Ad Hoc Committee, Member  
2009-10, USF Math and Stat Department, Nagle Lecture Series Committee, Chair  
2009-10, USF Math and Stat Department, Publicity Committee, Member  
[During the period of 2004-08 I have been a member of Undergraduate Committee (twice), Nagle Lecture Series Committee (twice), and Publicity Committee in our department.]

### **Grants and Awards**

NSF Conference Grant for SEAM 2016 (PI, Award amount \$24,960).  
USF Internal Conference Grant for SEAM 2016 (PI, Award amount \$5,000).  
USF CAS Professional Development Leave Award (Fall semester, 2012).  
USF Faculty International Travel Grant (Award amount \$2,500) (Spring/Summer 2012).  
USF CAS Professional Development Leave Award (Spring semester, 2009).  
NSF and AMS travel grant for participation of ICM'2002 in Beijing, China.  
German DAAD grant for Visiting Research Professor (December 1, 1996-February 28, 1997).  
My research has been supported by University of Oldenburg, Germany, during my visits to that school in 1996-97 and in 2009. While working in Russia in 1994-98 my research has been supported by RFBR (Russian Foundation for Basic Research). The same foundation has supported my participation at international conferences and research visits by travel grants.

**RESEARCH INTERESTS: Complex analysis, Approximation theory.** In particular: Boundary behavior of analytic functions; Pointwise and uniform approximation by polynomials, rational and entire functions in the complex plane; Functional analysis methods in approximation theory; Complex measures, Conformal mapping methods in approximation theory; Applications of real analysis and of topological and set theory methods in complex analysis.

### **The main focus of my recent (ongoing) research:**

**(i)** Joint project with Vilmos Totik on problems of potential theory, complex and harmonic analysis on the work of 1940s of R. Salem, A. Zygmund, and A. Beurling. In [25], published in 2016, we solved the problem of proving the converse to a theorem of Salem and Zygmund. We gave some applications of this result in the theory of univalent functions.

**(ii)** Project in the theory of bounded analytic functions. In particular, my new paper [29] solves an open problem proposed by Lee Rubel in 1973. Note that this problem has been included in the well-known research problem collection (published in 1974) of Walter Hayman in function theory.

### **INTERNATIONAL COLLABORATION AND TALKS**

June 23, 2016, Talk at the Institute of Mathematics of National Academy of Sciences of Armenia, (Yerevan, Armenia) Talk: Some Problems of Approximation theory and Rubel's interpolation problem.

June 12, 2015, Talk at the University College Dublin (Dublin, Ireland). Talk: Bounded approximation by polynomials and the Rudin-Carleson theorem.

May 18, 2015, Talk at Bar-Ilan University, Israel. Talk: Bounded approximation and radial interpolation in the unit disc and related questions.

April 29, 2015, Talk at the Michigan State University (E Lansing). Talk: Polynomial approximation in the unit disc and the Rudin-Carleson theorem

May 28 - June 4, 2011, Research and talk at Bar-Ilan University, Israel.

May 30, 2011; Talk at Bar-Ilan Analysis Seminar: Paul Montel's problem on pointwise convergent polynomial series and complex approximation theory

April 28 - May 17, 2009; Research and talk at the University of Oldenburg, Germany.

May 14, 2009; Talk: Bounded approximation in complex domain and applications

April 4 - 9, 2009. Short research visit and talks at Cornell University, Ithaca.

April 5, 2009; Cornell Analysis Seminar, Talk: Bounded approximation on subsets of the complex plane and applications; April 8, 2009; Cornell Math-Teaching Seminar, Talk: Remarks concerning the instruction of the concept of limit.

April 1, 2009; De Paul University, Analysis Seminar, Talk: Bounded approximation on open and closed subsets of the complex plane and the peak-interpolation theorem of E. Bishop

March 25, 2009; Michigan State University, Analysis Seminar, Talk: On a problem of A.M. Davie on bounded approximation and the peak-interpolation theorem of E. Bishop

1998-2014; Talks at Univ. of South Florida, Tampa, and at Univ. of Central Florida, Orlando.

April 9-23, 1997; Talks at the Univ. of Michigan, Ann Arbor and at Wayne State Univ., Detroit.

December 1, 1996-February 28, 1997; Research at the University of Oldenburg, Germany, supported by a German DAAD grant for faculty. Talks at the Universities of Oldenburg and Hannover. (With Professor Gerald Schmieder we published a paper [12].)

In 1993-94 using email communications, I worked on a joint project with the well-known American mathematician L.A. Rubel; we published a paper [14].

## **PARTICIPATION AND INVITED TALKS AT INTERNATIONAL CONFERENCES**

2016, July 25-29, New Trends in Approximation Theory - A Conference in Memory of Andre Boivin. Fields Institute, Toronto, Canada. Invited 1-hour talk. Talk: On the zero-free polynomial approximation problem.

2016, June 11-17, International Conference CONSTRUCTIVE THEORY OF FUNCTIONS. Sozopol, Bulgaria. Talk: Rubel's problem on bounded analytic functions

2015, May 10-15, International Conference on Complex Analysis & Dynamical Systems VII, Nahariya, Israel. Talk: On the zero-free polynomial approximation problem

2015, June 14-18, PDEs, Potential Theory and Function Spaces, Linköping University, Sweden. Talk: Bounded approximation by polynomials and the Rudin-Carleson theorem

2015, March 8 -10, 31st Southeastern Analysis Meeting, University of Georgia, Athens, GA. Talk: On the zero-free polynomial approximation problem

2014, July 21 -25, Perspectives of Modern Complex Analysis, (Banach Center Conf.), Bedlewo, Poland. Talk: Approximation by sequences of uniformly bounded polynomials

2014, June 16-19, Second Joint Meeting with the Israel Mathematical Union  
Bar-Ilan University, Ramat-Gan and Tel-Aviv University, Ramat-Aviv, Tel Aviv, Israel

2014, June 11-13, Complex and Harmonic Analysis, Workshop at Holon Inst. of Technology,  
Holon, Israel. Talk: Weak-star convergence and approximation by polynomials

2014, March 7 - 8, 30th Southeastern Analysis Meeting, Clemson University, Clemson, SC.  
Talk: Approximation on compact Hausdorff spaces and applications

2012, June 25 - July 1, Invited session "On the Theory of Approximation and Applications" for 6<sup>th</sup>  
World Congress of IFNA, University of Athens, Greece.  
Talk: A new universal approximation method and applications.

2011, May 22 – 27, International Conference on Complex Analysis & Dynamical Systems V, Akko  
(Acre), Israel. Talk: Approximation and interpolation on compact sets

2010, May 21 – 23, Conference on Complex Analysis in honor of David Drasin and Linda Sons,  
Department of Mathematics, University of Illinois at Urbana-Champaign. Talk: On a polynomial  
approximation problem and related questions

2010, March 25 – 28, 26th Southeastern Analysis Meeting, Georgia Institute of Technology,  
Atlanta. Talk: A bounded approximation problem of L. Zalcman

2009, May 18 – 22, International Conference on Complex Analysis & Dynamical Systems IV,  
Nahariya, Israel. Talk: On an approximation problem of L. Zalcman

2009, March 27 – 29, AMS Special Session on Complex Dynamics and Value Distribution,  
Urbana, IL (UIUC). Talk: Bounded approximation on open and closed subsets of the complex  
plane.

2006, August 22 – 30, International Congress of Mathematicians 2006, Madrid, Spain.  
Talk (in analysis section): On a question of A.M. Davie on bounded approximation

2005, June 13 – 18, Computational Methods and Function Theory 2005 (CMFT'2005), Joensuu,  
Finland. Talk: On the uniqueness property of analytic function and related questions

2005, May 23 – 29, International Conference (Function Spaces, Approximation Theory, Nonlinear  
Analysis) dedicated to the centennial of S.M. Nikol'skii, Moscow, Russia.  
Talk: On analytic functions defined in the unit disk.

2002, August 20- 28, International Congress of Mathematicians, 2002, Beijing, China.  
Attendance supported by NSF and AMS.

2002, August 14-17, Complex Analysis (a satellite conference of ICM 2002), Shanghai, China.  
Talk: On the boundary behavior of analytic functions

2002, June 16-20, Conference on Analysis and Probability on Fractals, Cornell University,  
USA. Talk: Singularity points of a class of analytic functions and fractals

2001, June 25-29, Computational Methods and Function Theory 2001 (CMFT'2001), Aveiro,  
Portugal. Talk: On a localization problem for limit functions of unbounded sequences of rational  
functions

2001, January 9-13, Joint Mathematics Meetings, AMS Session on Real Analysis, New Orleans.  
Talk: On the convergence of functions defined on compact Hausdorff Spaces

2000, July 3-14, Seminaire de Mathematiques Superieures 39th session, "Approximation, Complex Analysis, and Potential Theory", Universite de Montreal, Montreal, Canada.

1998, August 11-16, Int. Congress of Mathematicians 1998 (ICM'98), Satellite Conference "Conformal geometry and geometric function theory", Berlin, Germany. Talk: On a conformal mapping approach in approximation theory

#### LIST OF PUBLICATIONS

29. Rubel's problem on bounded analytic functions, *Ann. Acad. Sci. Fenn. Math.*, V. 41, 2016, 813-816.
28. A theorem of Lohwater and Piranian, *Proc. Amer. Math. Soc.*, V. 144, 2016, 3919-3920.
27. Radial limits and boundary uniqueness, (Manuscript)
26. Bounded approximation on compact Hausdorff spaces, (Manuscript)
25. (With Vilmos Totik) A converse to a theorem of Salem and Zygmund, *Bull. Sci. Math.*, V. 140, 2016, 260 -272.
24. Fatou's Interpolation theorem implies the Rudin-Carleson theorem, To appear in: *Journal of Fourier Analysis and Applications* (Published online: <http://arxiv.org/abs/1510.01410>)
23. On the zero-free polynomial approximation problem, *J. Approx. Theory*, V. 205, 2016, 60-63.
22. Weak-star convergence and a polynomial approximation problem, *Results Math*, V. 69, 2016, 257-262.
21. On the peak points, *Complex Var. Elliptic Equ.*, V. 60, 2015, 1475-1479.
20. The peak-interpolation theorem of Bishop. *Complex analysis and dynamical systems IV. Part 1*, 27–30, *Contemp. Math.*, 553, *Amer. Math. Soc., Providence, RI*, 2011.
19. (With G. Harutyunyan) On a subclass of approximable functions on closed subset, *Comput. Methods and Function Theory*, V. 11, no. 1, 2011, 123-133.
18. On a polynomial approximation problem, *J. Approx. Theory*, V. 162, 2010, 717-722.
17. On limits of sequences of rational functions, *Comput Methods and Function Theory*, V. 1, no. 2, 2001, 339-344.
16. (With E.B. Saff) An extension of E. Bishop's localization theorem, *Journ. of Approx. Theory*, V. 109, 2001, 148-156.
15. On a problem of M.A. Lavrentyev concerning the representability of functions by series of polynomials in the complex domain, *Russian Acad. Sci. Izv. Math.*, V. 63, no. 2, 1999, 29-40. (English trans.: *Izvestiya Math.*, V. 63, no. 2, 1999, 245-254.)
14. (With L.A. Rubel) Uniform Approximation by entire function which are all bounded on a given set, *Constructive Approx.*, V.14, no.4, 1998, 469-473.  
Erratum: *Constructive Approx.*, V.15, no.1, 1999.

13. M.A. Lavrentyev's problems on pointwise polynomial approximation and related questions, in: Computational Methods and Function Theory 1997, N. Papamichael, S. Ruscheweyh, and E. Saff (eds.), World Scientific, 1999, 161-170.
12. (With G. Schmieder) On topological properties of filled level sets of entire functions, Results in Mathematics, V. 33, 1998, 266-273.
11. (With U.G. Pirumov et al.) Numerical analysis of two - phase flow in gas - dynamic filter, Russian Acad. Sci. Matematicheskoe Modelirovanie, V. 10, no. 11, 1998, 19-28.
10. Certain problems arising from Rubel's Problem of simultaneous approximation, Russian Acad. Sci. Dokl., V.341, no. 1, 1995, 10-12.  
(English trans.: Doklady Math., V. 51, no. 2, 1995, 164-165.)
9. The set of divergence of polynomials, that are uniformly bounded on a compact set, Dokl. Acad. Nauk Armyan. SSR, V. 89, no. 4, 1989, 161-163.
8. (With S.N. Mergelyan) On the sequences of polynomials converging on  $F_\sigma$  sets, Dokl. Acad. Nauk Armyan. SSR, V. 86, no. 2, 1988, 54-57. (Russian)
7. On the representation of functions by sequences of uniformly bounded polynomials on compact sets of the complex plane, Izv. Acad. Nauk Armyan. SSR, V. 21, no. 4, 1986, 345-357.  
(English trans.: Soviet J. Contemp. Math. Analysis, V.21, no.4, 1986, 30-43.)
6. (With S.N. Mergelyan) Representation of functions by converging polynomial series, Mater. Resp. Nauchno-Prakt. Conf. po Met. Prep. Matem. v Vuze, Yerevan, 1986, 95-97. (Russian)
5. On convergence of sequences of polynomials, which are uniformly bounded on compact sets of complex plane, Ibid, 1986, 76-77. (Russian)
4. On boundary values of a class of analytic in disk functions, Arm. NIINTI, no. 49 AR-85 Dep., 1985, 12p. (Russian)
3. Functions of the first Baire class, defined on compact sets, Dokl. Rasshir. Zased. Sem. Instituta Prikl. Mat. im I.N. Vekua, Tbilisi, V. 1, no. 2, 1985, 64-67. (Russian)
2. Solution of Problem M547, Kvant, 1980, no. 1, p. 33.
1. Problem M547, Kvant, 1979, no. 2, p. 32.