Curriculum Vitae
Anahit Galstyan

School of Mathematical and Statistical Sciences
University of Texas Rio Grande Valley
Edinburg, TX 78539-2999
Phone: (956) 665-3556
E-mail: anahit.galstyan@utrgv.edu
Homepage: http://faculty.utpa.edu/agalstyan/

Education:

Ph.D. in Applied Mathematics, University of Cincinnati, OH, U.S.A, **June, 2005.**

Candidate of Sciences, Mathematics, Yerevan State University, Armenia, 1993.

M.S. in Mathematics and Mathematics Education **,** Yerevan State University, Armenia, 1985.

EMPLOYMENT:

September 1, 2015 to present	Associate Professor, School of Mathematical and Statistical Sciences, University of Texas Rio Grande Valley
September 1, 2011 to August 31, 2015	Associate Professor, Department of Mathematics, University of Texas-Pan American
September 1, 2005 to August 31, 2011	Assistant Professor, Department of Mathematics, University of Texas-Pan American
January, 2003 – June, 2005	Teaching Assistant, Department of Mathematical Sciences , University of Cincinnati
Aug.2001- Dec., 2002,	Teaching Assistant, Department of Mathematics, Kansas State University
Sep., 2000 – Jan. 2007	Sci. researcher, Institute of Mathematics of National Academy of Sciences of Armenia
Sep. 1988 - July, 2000	Assistant Professor, Department of Mathematics, Yerevan State University

Temporary positions

Oct. 1, 1995 - July 31, 1996	DAAD-scholarship in Max-Planck-Arbeitsgruppe ``Partielle Differentialgleichungen und Komplexe Analysis'', Institute of Mathematics, University of Potsdam, **Germany**
August 1, -Dec. 31,1996	Max-Planck-Institute Scholar, Institute of Mathematics, University of Potsdam, **Germany**
Jan. 1 - May 31,1997	Scientific researcher in Arbeitsgruppe "Partielle Differentialgleichungen und Komplexe Analysis", Institute of Mathematics, University of Potsdam, **Germany**
Apr.,1999- Apr.,2000	Foreign Lecturer, University of Tsukuba, Tsukuba, **Japan**
May,1998 - Apr.,2000	Lecturer, Tsukuba International Academy, Tsuchiura, **Japan**
June - July, 2001	Scientific researcher, Institute of Mathematics, University of Potsdam, **Germany**

PUBLICATIONS:

1. "*Semilinear Wave Equation in the de Sitter Spacetime with Hyperbolic Spatial Part*", **Birkhauser series Trends in Mathematics/Research Prospectives,** Springer International Publishing (2017) doi: 10.1007/978-3-319-48812-7-62.

2. *"Global in time existence of self-interacting scalar field in de Sitter spacetimes",* **Nonlinear Analysis: Real World Applications 34,** (2017), pp. 110-139 (co-author K. Yagdjian, UTRGV).

3. *"Global solutions for semilinear Klein-Gordon equation in FLRW spacetimes",* **Nonlinear Analysis. Theory, Methods & Applications 113, 2015***, 339-356* (co-author K. Yagdjian, UTPA).

4. *Representation of Solutions for 2nd Order One-dimensional Model Hyperbolic Equations*, **Journal d'Analyse Mathematique** 130, pp. 355-374. (co-author T. Kinoshita, Japan)

5. *Microlocal analysis for hyperbolic equations in Einstein-de~Sitter Spacetime,* **Birkhauser series Trends in Mathematics/Research Prospectives,** 2015, pp. 225-232

6. *Microlocal Analysis for Waves Propagating in Einstein & de Sitter Spacetime,* **Mathematical Physics, Analysis and Geometry, 17 (2014), 223-246** (co-author K. Yagdjian, UTPA)

7. *Exponential function of pseudo-differential operators in Gevrey spaces,* **Journal of Integral Equations and Operator Theory, 70 (2011), 281-300.**

8. *Lp - Lq decay estimates for the Klein-Gordon equation in Anti-de Sitter Spacetime*, **Rendiconti Istit. Matematico dell' Universita' e del Trieste, 42 (2010), 27-50.**

9. *A Note on Wave Equation in Einstein & de Sitter Spacetim*e **, Journal of Mathematical Physics, 51 (2010), 052501 -0525018.** (co-authors T. Kinoshita, K. Yagdjian)

10. *The wave equation in the Einstein and de Sitter spacetime*, , **PROGRESS IN ANALYSIS AND ITS APPLICATIONS**, edited by Michael Ruzhansky *(Imperial College London, UK)* & Jens Wirth *(Imperial College London, UK)* , Word Scientific, 2010 (co-authors T. Kinoshita, K. Yagdjian)

11. *Fundamental Solutions for Wave Equation in Robertson-Walker Model of Universe and Lp-Lq -decay Estimates,* **Discrete and Continuous Dynamical Systems-S, 2(2009), pp. 483 – 502,** (co-author K.Yagdjian)

12. *The Klein-Gordon Equation in the Anti-de Sitter Spacetime,* **Rendiconti del Seminario Matematico dell' Universita' e del Politecnico di Torino, 67(2009), pp. 271-292** , (co-author K. Yagdjian).

13. *Fundamental Solutions for the Klein-Gordon Equation in de Sitter Spacetime*, **Communications in Mathematical Physics, 285(2009), 293-344,**. (co-author K. Yagdjian).

14. *Global existence for the one-dimensional second order semilinear hyperbolic equations*, **Journal of Mathematical Analysis and Applications, 344 (2008), pp. 76–98.**

15. *Fundamental solutions of the wave equation in Robertson–Walker spaces*, **Journal of Mathematical Analysis and Applications, 346 (2008), 501-520**. (co-author K. Yagdjian).

16. *About the existence of the global solution for one dimensional semilinear Gellerstedt-type equation*, **Journal Dynamics of Continuous, Discrete and Impulsive Systems A, Vol. 14**

2

(2007), pp 107-111.

17. *Fundamental solutions for the wave equation in de Sitter model of universe,* **Univeristy Potsdam, Potsdam, Germany, ISSN 1437-739X,** *2007,***pp.1-36.** (co-author K. Yagdjian).

18. *Global Existence for the semilinear Tricomi-type equations*, Proceedings of the MSRI, Berkeley, 2006.

19. *On the oscillations of the solution curve for a class semilinear equations,* **Journal of Mathematical Analysis and Applications, v. 321, (2006), pp. 576-588.** (co-authors P. Korman, Y. Li).

20. *Lp-Lq decay estimates for the wave equation with exponentially growing speed of propagation,* **Applicable Analysis, 2003, v.82, no. 3, 197-214.**

21. On *deconvolution methods*, **International Journal of Engineering Science, 2003, v. 41, no. 1, 31-43.** (co-author A.G. Ramm).

22. *Lp - Lq decay estimates for a Klein-Gordon type model equation*, Proceedings of the Second Congress ISAAC, Fukuoka, Japan,1999; Kluwer Publisher, 2000 (co-author M. Reissig).

23. *An integral equation of Volterra type with pseudo-differential kernel*, in the book "Differential equations and functional analysis", Yerevan State University Press, Yerevan 1993.

24. *Uniqueness of solutions of the Cauchy problem for degenerating elliptic equations* (Russian); Uspehi Mat. Nauk, 1989, v.44, no.4, 223. (co-author K. Yagdjian).

25. *A solution of integral equation with pseudo-differential kernel,* Dokl.Acad. Nauk Armenii, 1992, v.93, no.5, 207-211.

26. *Uniqueness of the solution of the Cauchy problem for degenerating elliptic equation* (Russian); Differencial'nye Uravnenija, 1990, v.26, no.10, 1818-1821(co-author K. Yagdjian).

27. *Uniqueness of the solution of the Cauchy problem for degenerating elliptic equation*; Soviet Journal of Contemporary Mathematical Analysis, 1990, v.25, no.2, 85-90 (co-author K. Yagdjian).

SUBMITED FOR PUBLICATION:

28. *"Lifespan of the Solution Semilinear Wave Equation in the de Sitter Spacetime with Hyperbolic Spatial Part",* under review
29. "*Integral Equations with pseudo-differential kernels***",** under review

30. *Finite lifespan of solutions of semilinear wave equation in the Einstein-de Sitter spacetime, under review*

TEACHING EXPERIENCE:

University of Texas-Pan American and University of Texas Rio Grande Valley

Partial Differential Equations (graduate level), Spring 2016
Ordinary Differential Equations (graduate level), Spring 2009,
Analysis II (graduate level), Spring 2012, Spring 2014, Spring 2015

Boundary Value Problems, Spring 2013
Calculus III, Fall 2008, Spring 2010, Fall 2013
Mathematical Modeling, Spring 2007,
Calculus II, Spring 2007; Fall 2007; Spring 2008, Fall 2010, Spring 2011, Spring 2014,
Spring 2015
College Algebra, Fall 2005, Summer 2006, Spring 2011, Fall 2011
Calculus I, Spring 2006, Summer 2006, Fall 2006, Fall 2009, Fall 2012, Fall 2014, Fall 2015, Fall
2016, Spring 2017

University of Cincinnati :
Calculus I,II (Primary Instructor:) Winter 200 4, Spring 2004
Finite Mathematics and Calculus   (Primary Instructor:); Spring 2003
Kansas State University:
Elementary Differential Equations;(*Teaching Assistant)*: Fall 2002.
Analytic Geometry and Calculus III; (*Teaching Assistant*);Fall 2002 .
Plane Trigonometry; (*Teaching Assistant*); Fall 2002
Analytic Geometry and Calculus II,(*Teaching Assistant*); Spring 2002.
College Algebra, *(Primary Instructor*), Summer 2002; (*Teaching Assistant)*, Fall 2001
University of Tsukuba (JAPAN)
 Partial Differential Equations; (Primary Instructor); Fall 1999, Spring 2000

Yerevan State University (**ARMENIA**)
Teach undergraduate mathematical courses:
Calculus, Ordinary Differential Equations, Equations of Mathematical Physics
Teach graduate mathematical courses:
Pseudo-differential operators, Fourier Integral Operators Theory, Micro-Local Analysis

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RESEARCH EXPERIENCE:

Conduct research on the L_p-L_q decay estimates for hyperbolic equations, uniqueness in the Cauchy problem, solvability of Volterra type operator-valued equations, equations of mathematical cosmology.

Field: Partial Differential Equations, Equations of Mathematical Physics, Applied Mathematics

Current research interests: local and global solvability for semilinear equations, representations and asymptotical behavior of the solutions of the equations of mathematical cosmology.

PROFESSIONAL ACTIVITIES:

Presentations and Participation at the International and National Level:

- ❖   *" Semilinear Wave Equation in the de Sitter Spacetime with Hyperbolic Spatial Part"* XVI International Conference on Hyperbolic Problems: Theory, Numeric, Applucations, **Aachen, Germany**, **August 4, 2016** (invited talk)
- ❖ *" Semilinear Wave Equation in the de Sitter Spacetime with Hyperbolic Spatial Part"* Georg-August Universität Göttingen, **Göttingen, Germany**, **July 5, 2016** (invited talk)
- ❖ *" Lifespan of the Solutions of the Semilinear Wave Equation in the De Sitter Spacetime"* TU Bergakademie Freiberg, **Freiberg, Germany, July 1, 2016.** (invited talk)
- ❖ *" Lifespan of the Solutions of the Semilinear Wave Equation in the De Sitter Spacetime"*

NSF/CBMS regional research conference in the mathematical sciences. "Discrete Painleve Equations", University of Texas Rio Grande Valley, **May 2016.**

❖ **"***Semilinear Hyperbolic Equations in De Sitter Spacetime***",** 10th International ISAAC Congress, Macao, China 3-8 August, 2015 (invited talk)

❖ *"Semilinear Klein-Gordon equation in FLRW spacetimes",* Joint Mathematics Meetings, San Antonio, January 10-13, 2015

❖ *"Microlocal Analysis for Evolution Equations in the Einstein de~Sitter Spacetime",* the 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, July 07 - July 11, 2014, Madrid, **Spain** (invited talk)

❖ *"Global solutions for semilinear Klein-Gordon equation in FLRW spacetimes"*, the 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, July 07 - July 11, 2014, Madrid, **Spain** (invited talk)

❖ *"Microlocal Analysis for Wave Equation in the Einstein & de Sitter Spacetime"* Georg-August Universität Göttingen, **Göttingen, Germany**, **June 20, 2013** (invited talk)

❖ **"***Microlocal Analysis for Hyperbolic Equations in the Einstein & de Sitter Spacetime***",** The 9th International ISAAC (International Society for Analysis, its Applications and Computation) Congress, Krakow, **Poland**, August 5-9, 2013 (invited talk)

❖ *"The Cauchy Problem for hyperbolic equations of mathematical cosmology",* the international conference Fourier Analysis and Pseudo-Differential Operators, June 25 – 30, 2012, **Helsinki, Finland** (invited talk)

❖ "*Similarity solutions for some model equations appearing in the gas dynamics*", The Joint Annual meetings of the American Mathematical Society (AMS) and Mathematical Association of America, **Boston January 4, 2012, USA** (invited talk)

❖ "*About the existence of global solution for the one-dimensional semilinear Gellerstedt-type equation*", invited talk, TU Bergakademie Freiberg, **Freiberg, Germany, June 29, 2011.**

❖ *"Global Existence for the one-dimensional semilinear Tricomi-type equations",* invited talk*,* Georg-August Universität Göttingen, **Göttingen, Germany**, **June 17, 2011.**

❖ **"***Some hyperbolic equations arising in mathematical cosmology***",** Joint Annual meetings of the American Mathematical Society (AMS) and Mathematical Association of America (MAA) **at New Orleans, LA**, **January 6-9, 2011.**

❖ "*Similarity solutions for the semilinear Tricomi-type equations*" , The 8th AIMS Conference on Dynamical Systems, Differential Equations and Applications, invited talk, special session 32 Evolutionary Partial Differential Equations: Theory and Applications, **May 25 - 28, 2010, Dresden, Germany.**

❖ *"Global existence for the semilinear Gellerstedt-type equation",* The 8th AIMS Conference on Dynamical Systems, Differential Equations and Applications, invited talk, special session 53 Global or/and Blow-Up Solutions for Nonlinear Evolution Equations and Their Applications , **May 25 - 28, 2010, Dresden, Germany.**

❖ "*Some Hyperbolic equations arising in mathematical cosmology and gas dynamics*", TU Bergakademie Freiberg, invited talk, **Freiberg, Germany, July 13, 2010.**

❖ "*Wave Equation in Einstein de Sitter Spacetime*", invited talk, special session VI.2 Dispersive Equations, 7th International ISAAC Congress, Imperial College London, **July 13-18, 2009, London, U.K.**

❖ *"Global existence for the one-dimensional semilinear Tricomi type equation",* invited talk, special session VI.3 Control and optimization of nonlinear evolutionary systems 7th International ISAAC Congress, Imperial College London, **July 13-18, 2009, London, U.K.**

❖ "*Fundamental Solutions for Wave Equation in Robertson-Walker Models of Universe*", invited talk, 7th AIMS International Conference on Dyn. Systems, Diff. Equations and Applications, **Arlington, Texas, USA**, **May 18 - 21, 2008**.

- ❖ *"About the existence of the global solution for one-dimensional semi-linear Gellerstedt-type equation"*, **University of Tsukuba, Japan, June 4, 2008.**
- ❖ "*Fundamental Solutions for Wave Equation in Robertson-Walker Spaces*", invited talk, Second International Conference on Pseudo-Differential Operators and Related Topics, **Växjö University, Sweden, June 23-27, 2008**.
- ❖ *"On the oscillations of the solution curve for a class of semilinear equations"*, invited talk, 3rd Symposium on Analysis & PDEs, Purdue **University, West Lafayette, IN, May 27-30, 2007**.
- ❖ *"Necessary condition for the existence of the similarity solutions for the semilinear Gellerstedt-type equation"*, invited talk, Fifth international conference on Differential Equation and Dynamical Systems, **December 16-18, 2006**.
- ❖ "*Global Existence for the semilinear Tricomi-type equations*" , "Women in Mathematics: The Legacy Ladyzhenskaya and Oleinik" conference, **May 18-20, 2006**, **Berkeley, MSRI**.
- ❖ "*On the oscillations of the solution curve for a class of semilinear equations*", Joint Annual meetings of the American Mathematical Society (AMS) and Mathematical Association of America (MAA) **at San Antonio, Texas**, **January 12-15, 2006.**
- ❖ NSF/CBMS regional research conference in the mathematical sciences. "New Perspectives for Boundary Value Problems and their Asymptotics", University of Texas-Pan American, **May 2005.**
- ❖ *"Lp-Lq decay estimated for the wave equations with exponentially growing speed of propagation",* Internationa*l* Conference on Partial Differential Equations and Applications, University of Notre Dame, August 2003.
- ❖ International Conference on Nonlinear Evolution Equations and Applications, Evanston, U.S.A., June 2003.
- ❖ *"Lp – Lq decay estimates for a Klein-Gordon type model equation"*, International Cconference on Partial Differential Equations and Related Topics", Pisa, *Italy*, May 2000;
- ❖ *"Lp – Lq decay estimates for a Klein-Gordon type model equation",* Second Congress ISAAC 1999", Fukuoka, *Japan*, Aug., 1999;
- ❖ Tsukuba, *Japan*, Feb.1996, Feb.1999, Feb.2000, Feb.2001;
- ❖ *"Exponential Function of Pseudodifferential Operators",* Matsuyama, *Japan*, Jan. 1996;
- ❖ "Analytic Foundations of Index Theory; Operator Algebras and Singularities", Potsdam, *Germany*, Feb., 1995; Feb. 1996, Feb.,1997;
- ❖ "Partial Differential Equations", Potsdam, *Germany*, Aug, 1996;
- ❖ Konstanz, Germany, June 1996.

Presentations at the Regional and Local Conferences and Seminars:

- ❖ *"Microlocal Analysis for Wave Equation in the Einstein-de Sitter Spacetime",* Applied Mathematics Seminar, Department of Mathematics, October 31, 2012, UTPA
- ❖ "*Exponential Function of Pseudo-Differential Operators*", Applied Mathematics Seminar, Department of Mathematics, February 23, 2012, UTPA
- ❖ "*Hyperbolic Equations in Einstein-de Sitter spacetime*" at t*he 34th Annual Texas Partial Differential Equations Conference,* UTPA, Edinburg, TX, March 2011.
- ❖ *"Decay estimates for the Klein-Gordon equation in anti-de Sitter spacetime",* the Applied Mathematics Seminar, Department of Mathematics, UTPA, November 2009.
- ❖ *"Lp-Lq Decay Estimates for the Wave Equation with Exponentially Growing Speed of Propagation",* the Applied Mathematics Seminar, Department of Mathematics, UTPA, November 2008.

- ❖ *"Lp-Lq Decay Estimates for a Klein-Gordon type model equations"*, Applied Mathematics Seminar , Department of Mathematics, UTPA, November, 2007.
- ❖ *"Global existence for the one-dimensional semilinear Gellerstedt type equation"*, 30th Annual Texas Partial Differential Equations Seminar, University of Texas at San Antonio, San Antonio, TX, March 24-25, 2007.
- ❖ *"Global existence for the one-dimensional semilinear Gellerstedt type equation"*, Applied Mathematics Seminar, Department of Mathematics, UTPA, April, 2007
- ❖ "*Lp-Lq Decay Estimates and Global Existence*", 29th Annual Texas Partial Differential Equations Conference, University of Texas at Arlington, Arlington, March 2006.
- ❖ "*Lp-Lq Decay Estimates and Global Existence*", the Applied Mathematics Seminar, Department of Mathematics, UTPA, November, 2005.
- ❖ *"Infinitely many solutions of boundary value problem at a resonance"*, 28th Annual Texas Partial Differential Equations Conference, University of Texas-Pan American, March 2005.

Invited talks at:
University of Goettingen, Germany**, 2011, 2013**, **2016**
University of Texas-Pan American, **February 2005.**
Montclair State University, U.S.A., **February, 2005.**
Purdue University North-Central, U.S.A., **March, 2005.**
Christopher Newport University, U.S.A., **April, 2005.**
TU Bergakademie Freiberg, Germany; **1996**, **2010, 2011, 2016.**
Potsdam University, Germany; **1996, 1997, 2001**.
University of Konstanz, Germany; **October, 1996, June, 1997**.
University of Tsukuba, Japan; January **1999, February 2000**, **May 2008.**
Tokyo Metropolitan University, Japan; **August 1998, August 1999**.
Ehime University, Japan, **January, 1999.**

Awards:
Summer 2004 -- Summer Research Fellowship
2004 - The Outstanding Graduate Assistant Award for the academic year 2003-2004.
2004 – 2005   -- Henry Laws Fellowship
2004 – 2005   Taft Enhancement Award

Grants (funded)
- ❖ Principal Investigator of the grant "Hyperbolic Partial Differential Equations in Curved Spacetimes", funded by **NSF-AWM** , Spring 2015
- ❖ Principal Investigator of the grant "Evolution Equations in the de Sitter model of universe", funded by **NSF-AWM** , Spring 2012
- ❖ Principal Investigator on the grant "Hyperbolic equations in the Einstein&de Sitter spacetime", **-NSF -AWM**, Spring 2008
- ❖ Principal Investigator of the grant " "*Evolution equations in the Einstein & de Sitter spacetime*" funded **F**aculty Development Council, Spring 2013.
- ❖ Principal Investigator of the grant "Evolution Equations on the de Sitter spacetime", funded **F**aculty Development Council, Spring 2008.
- ❖ Undergraduate Research Initiative Grant 200, 2012-2013.
- ❖ German Academic Exchange Service (Deutscher Akademischer Austauschdienst DAAD) in 1995-1996, June - July, 2001
- ❖ Max-Planck-Gesselschaft in 1996

Professional Services:

- ❖ Co-organizer of special session "Analysis of Hyperbolic PDEs" at the 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, July 07 - July 11, 2014, Madrid, **Spain**
- ❖ "5-th International Conference 5th International Conference on Differential Equations and Dynamical Systems, Local Organizing Committee
- ❖ MAA Texas Section Meeting, March/April 2007, Local Arrangement Committee
- ❖ NSF-CBMS International Conference, May 2010, UTPA, Local organizing Committee
- ❖ **Editor** of the International Journal of Applied Mathematics and Statistics .
- ❖ **Guest Editor** for the Special Issue of the International Journal Dynamics of Continuous, Discrete and Impulsive Systems.
- ❖ **Reviewer** for
  - a) IMA Journal of Applied Mathematics,
  - b) Journal of Mathematical and Computer Modeling,
  - c) Mathematical Methods in Applied Sciences,
  - d) Pacific Journal of Applied Mathematics
  - e) Journal of Inequalities and Applications
- ❖ **Reviewer for Mathematical Review**
- ❖ **Member** of the American Mathematical Society and Association for Women in Mathematics
- ❖ **Judge** for Association of Women in Mathematics/Math for America Essay Contest
- ❖ Member of Association of Women in Mathematics Mentor Network
- ❖ Mentor for the National Alliance for Doctoral Studies in the Mathematical Sciences

Departmental, College and University Service

- ❖ **Advance Administrative Fellow, UTRGV**
- ❖ University Admission Committee
- ❖ Faculty Senate, UTPA
- ❖ Faculty Development Council
- ❖ Member of the University Academic Policies Committee
- ❖ Member of College Council
- ❖ Chair of the Annual Evaluation Committee
- ❖ Chair Annual Evaluation Document Revision Committee
- ❖ Chair of Scholarship Committee
- ❖ Member of Faculty Search Committee
- ❖ Chair of Precalculus Textbook Committee
- ❖ Chair of College Algebra Textbook Committee
- ❖ Chair of Mathematics Scholarship Committee
- ❖ Calculus Textbook Committee
- ❖ Graduate Curriculum Committee

Languages : **English - Fluent** /reading, writing, understanding, speaking/
               German - Fluent */reading, writing, understanding, speaking/*
               Japanese - Good */ understanding, speaking/*
               Russian   - **Fluent** */reading, writing, understanding, speaking/*
               Armenian- **Fluent** */reading, writing, understanding, speaking/*