

# CURRICULUM VITAE

## 1.- PERSONAL DATA

Family Name: ADAMYAN  
Name: Vadym M.  
Date of Birth: December, 02, 1938  
Place of Birth: Odessa, Ukraine  
Citizenship: Citizen of Ukraine  
Marital status: married, two children:  
married son and married daughter

## Permanent Addresses

### office:

Dept. of Theoretical Physics

Odessa National. I.I.Mechnikov University,  
2 Dvoryanska St,  
Odessa 65082, Ukraine

Telephone: +380-48-7317556

e-mail: [vadamyan@onu.edu.ua](mailto:vadamyan@onu.edu.ua) ; [vadamyan@paco.net](mailto:vadamyan@paco.net)

### home:

Frantsuzski boulevard 12/1,  
App. 4,  
Odessa 65044, Ukraine

Telephone: +380-48-7776217  
+380-67-4845850 (mob)

e-mail: [vadamyan@onu.edu.ua](mailto:vadamyan@onu.edu.ua) ; [vadamyan@paco.net](mailto:vadamyan@paco.net)

Web : <http://theorphys.onu.edu.ua>

## 2.- EDUCATIONAL DATA

- Diploma in Physics, specialization in Theoretical Physics  
Department of Physics, Odessa University, 1956-1961  
Title of Diploma: *"Influence of Retardation on the Exciton Band Structure"*  
Supervisor: Dr.Sc. Yu.A. Tsvirko,  
Department of Theoretical Physics, Odessa University,  
June, 12, 1961  
Qualification: Excellent
- Ph.D in Physics and Mathematics, specialization in Functional Analysis and Function Theory,  
Institute of Mathematics and Mechanics, Armenian Academy of Sciences and Erevan University, Erevan  
Title of the Thesis: *"On Some Principles of Unitary Couplings of Semiunitary Operators Theory and its Applications in Scattering Theory"*  
Supervisor: Prof.Dr.Sc. M.G. Krein,  
Department of Theoretical Mechanics, Odessa Construction Engineering Institute,  
June, 20, 1966.

- Dr. of Sciences in Physics and Mathematics, specialization in Functional Analysis and Function Theory, Institute of Mathematics, Ukrainian Academy of Sciences, Kiev.  
Title of the Thesis: "*Unitary Couplings of Semiunitary Operators*"  
October 17, 1974

### 3.- PROFESSIONAL DATA

i) Senior Research Fellow, Research Laboratory of Devices Dynamics, Odessa Lomonosov Technological Institute, 1964-1966.

ii) Senior Lecturer, Department of Mathematics, Odessa Construction Engineering Institute, 1966-1967.

iii) Head of laboratory of Theoretical Physics, Odessa State University, 1967-1975.

iv) Associate Professor, Department of Theoretical Physics, Odessa State University, Classes in Mathematical Physics, Theoretical Mechanics, Quantum Statistics, 1975-1977.

v) Full Professor, Department of Theoretical Physics, Odessa State University, Classes in Mathematical Physics, Functional Analysis, Group Theory, 1977-1979.

vi) Head of the Department of Theoretical Physics, Odessa State University, Classes in Quantum Mechanics, Quantum Fields Theory, Quantum Theory of Solids, Scattering Theory, Stability Theory, Solitons Theory, Mathematical Physics, Group Theory and its Applications, Operator Theory, Financial Kinetics. Since July, 1979 up to date.

### 4.- Memberships in Scientific Societies

American Mathematical Society (AMS)

Gesellschaft für Angewandte Mathematik und Mechanik (GAMM)

Ukrainian Physical Society

### 5.- PUBLICATIONS

(most important ones published recently all in all I have more 140 publications (see also Adamjan V.M., Adamian V.M.))

1. *Determination of strongly coupled plasmas parameters in terms of the scattering spectra integral characteristics*. Contrib. Plasma Phys. **29** (1989), N4/5. (with I.M.Tkachenko).

2. *On the summability of the spectral shift function for pair of contractions and dissipative operators*. J. Operator Theory **24** (1990) 187 (with H.Neidhardt).

3. *Asymptotic properties for positive and Teoplitz matrices and operators*. Operator Theory: Adv. and Appl., v. **43** (1990), Birkhauser Verlag, Basel.

4. *Debye screening in dense hydrogen-like plasmas*. Fizika Plazmy **17** (1991), N3 (with O.O.Volyanskaya, M.V.Dudik and G. Reopke).

5. *Basic elements of nanoelectronics*. Electronaja prom. **N3** (1991) (with P.Luskinovich et al.).

6. *Nehari Problem with Losses*. Recent Advances in math. theory of systems, control, networks and signal processing I, MITA Press, Proceedings of Int. Symp. MTNS-91 (1992) 13-19
7. *Scattering matrices for microshemes*. Operator Theory: Advances and Applications, v.**59** (1992),1-17.
8. *High temperature superconductivity as a result of a simple and flat bands overlapping*. Fiz. Tverd. Tela v.**35** (1993) (with B.S.Pavlov).
9. *Eigenvalues of Sturm-Liuville problem depending rationally on the eigenvalue parameter*. Systems and Networks: Mathematical Theory and Applications Proceedings of Int. Symp. MTNS-93, v.II. Invited and Contributed Papers (1994), 589 - 594 Akademie Verlag,(with H. Langer, R Mennicken).
10. *The RPA Conductivity of Fully Ionized Plasmas in a Magnetic Fields*. Journal of Phisics, D- Applied Physics v.**27** (1994), 111 - 118,(with Z. Djuric et al.).
11. *Kinetic Coefficients of Fully Ionized Plasmas*, Journal of Physics, D- Applied Physics, v.**27** (1994), 927 - 933 (with Z. Djuric, A.M. Ermolajev et al.).
12. *High Freaquency Conductivity of HTSC*. Superconductivity: physics, chemistry, technique v.**7** (1994), 1359 -1664 (with M. Medvedev)
13. *Nuclear Hankel Matrices and Orthogonal Trigonometric Polynomials*. Contemporary Mathematics v.**189** (1995), 1 - 15 (with S. Nechayev)
14. *Spectral Propertiesof a Class of Rational Operator Valued Functions*. J. Operator Theory v.**33** (1995), 259 -277 (with H. Langer)
15. *X-ray - absorption Problem in Metals within One - electron Approximation*. Phys. Rev. B v. **52** (1995), 13827 (with J. Ortner, A. Salitra, I. Tkachenko)
16. *Spectral Components of Selfadjoint Block Operator Matrices with Unbounded Entries*. Math. Nachr. **178** (1996), 43-80 (with H. Langer, R. Mennicken, R.Saurer)
17. *On the Absolutely Continuous Subspace for Contractions and Dissipative Operators*. SFB 288 Preprint No. **205**, Berlin (1996), 1-33 (with H. Neidhardt)
18. *On the Discrete Spectrum of Some Selfadjoint Operator Matrices*. J. Operator Theory, **39** (1998), 3-41 (with R. Mennicken and J. Saurer)
19. *On Spectra of Some Class of Quadratic Operator Pencils*. Operator Theory: Advances and Applications v. **106** (1998), 23 -36 (with V. Pivovarchik)
20. *The Spectral Shift Function for Certain Block Operator Matrices*. Math. Nachr., **211**(2000), 5-24 (with H. Langer)
21. *Solution of theTruncated Matrix Hamburger Moment Problem According to M.G. Krein*. Operator Theory: Advances and Applications, vol. **118**(Proceedings of the Mark Krein International Conference on Operator Theory and Applications, vol.II, Operator Theory and Related Topics), Birkhäuser Verlag Basel, (2000), 32 - 51(with I. Tkachenko)
22. *On the Absolutely Continuous Subspace for Non-selajoint Operators*. Math.Nachr. v. **210** (2000), 5-42 (with H. Neidhardt)
23. *Linear static response of model plasmas and Yukhnovsky-Kelbg-Deutsch effective potential*. Condensed Matter Physics, v. **3**, No.3 (23).(2000), 641-656 (with I. Tkachenko)
24. *Valuation of bonds and options under floating interest rate*. Canad. Math. Soc. Conf. Proceed., v. **20** (2000), 01 - 14 (with B. Pavlov)

25. *Introduction to Mathematics of Finance*. Segundas Jornados de Invest. y Fomento de la Interdisciplinariedad, Depart. Mat. Aplicad. Universidad Politecnica de Valencia, Ref.: **2000.2330** (2000), 29-54
26. *On the Separation of Certain Spectral Components of Selfadjoint Operator Matrices*. Operator Theory: Advances and Applications v. **122**(2001), 01 -11 (with Reinhard Mennicken)
27. *Existence and Uniqueness of Contractive Solutions of Some Riccati Equations*. J. Funct. Anal., v. **179** (2001), 448 - 473 (with H. Langer and Chr. Tretter)
28. *Compact perturbation of definite type spectra of self-adjoint quadratic operator pencils*. Integr. eq. Oper. Theory, **39** (2001), 127 - 152 (with H. Langer and M. Moeller)
29. *A Spectral Theory of a  $\lambda$ -Rational Sturm-Liouville Problem*. Journal of Diff. Eq., v. **171** (2001), 315-345 (with H. Langer and M. Langer)
30. *Truncated Hamburger moment problem with constraints*. North-Holland Mathematics Studies, v. 189 (2001) (Proceedings of the International Functional Analysis Meeting on the Occasion of the 70th Birthday of Professor Manuel Valdivia), Valencia, Spain, July 3 -7, 2000), 321 - 333 (with I. Tkachenko)
31. *On the Spectral Theory of Degenerate Quadratic Operator Pencils*, *Operator Theory: Advances and Applications*. v. **124** (2001), 1 -19 (with Reinhard Mennicken and Vjacheslav Pivovarchik)
32. *High-frequency characteristics of weakly and moderately non-ideal plasmas in an external electric fields*. J. Phys. D: Appl. Phys. **34** (2001), No 21, 3139-3144 (with A.A. Mihajlov, Z. Djuric and N.M. Sakan)
33. *Matrix moment problems with constraints*. Proc. Appl. Math. Mech. **1** (2002), 420-421 (with I. Tkachenko)
34. *On a class of non-selfadjoint quadratic matrix operator pencils arising in elasticity theory*. J. Operator Theory v. **47** (2002), 325-341 (with Vjacheslav Pivovarchik and Christiane Tretter)
35. *Transcending the Limits of Turing Computability*, arXiv:quant-ph/0304128v2, 11May 2003, 1-13 (with Cristian S. Calude and Boris Pavlov)
36. *Solution of the Stieltjes truncated moment problem*, J. Applied Analysis, vol. 9, N.1 (2003) 57-74 (with I.M. Tkachenko and M. Urrea)
37. *Sum rules and exact relations for quantal Coulomb systems*, Contrib. Plasma. Phys. 43, N. 5-6 (2003), 252-257 (with I.M. Tkachenko)
38. *Reconstruction of Distributions by Their Moments and Local Constraints*, AMRX Applied Mathematics Research Express (Hindawi Publishing Corporation) 2003, No. 2, 33 - 70 (with J. Alcober and I.M. Tkachenko)
39. *Вступ до математичної фізики (Introduction to Mathematical Physics)*, Астропринт (Astroprint), ISBN 966-549-940-8, 2003, 1 -161 (1A- 161A) ( з М.Я. Сушко) (with M. Sushko)
40. *Dynamic characteristics of non-ideal plasmas in an external high frequency electric field* J. Phys. D: Appl. Phys. v. 37 (2004) 1896-1903 (with Z. Djuric, A. Mihajlov, N. Sakan and I. Tkachenko)
41. *Algorithms for extreme Eigenvalue problems* Proceedings of the 6th international symposium on math. theory of networks and systems (MTNS-2004), Katholieke Universiteit Leuven (Heverlee), (2004) 1 – 5 (with M. Nikpour, J.H. Manton, I. Mareels)
42. *Partial Non-stationary Perturbation Determinants*, Operator Theory: Advances and Applications v. 154 (2004), 1- 18 (with H. Langer)

43. *Solution of the Stieltjes Truncated Matrix Moment Problem*, *Opuscula Mathematica*, v. 25/1 (2005), 5-24 (with I. Tkachenko)
44. *Asymptotic estimates of the norms of positive definite Töplitz matrices and detection of quasi-periodic components of stationary random signals*. ArXiv:math.SP/0506091 v1 06 Jun 2005, 1-20 (with J. Iserle and I. Tkachenko)
45. *Варіаційне числення (Calculus of variations)*, Астропринт (Astroprint), ISBN 966-318-340-3, 2005, 1-128 ( з М.Я. Сушко) (with M. Sushko)
46. *Partial Non-stationary Perturbation Determinants for a Class of J-symmetric Operators*, *Operator Theory: Advances and Applications* v. 162 (2005), 1- 17 (with P. Jonas and H. Langer)
47. *General Solution of the Stieltjes Truncated Matrix Moment Problem*, *Operator Theory: Advances and Applications* v. 163 (2005), 1- 22 (with I. Tkachenko)
48. *Optical HF electrical permeability, refractivity and reflectivity of dense non-ideal plasmas*, *J. Phys. A: Math. Gen.* 39 (2006) 4401-4405 (with D. Grubor, A. Mihajlov, N. Sakan, V. Srećković and I. Tkachenko)
49. *Electrical conductivity of dense non-ideal plasmas in external HF electric field*, *J. Phys. A: Math. Gen.* 39 (2006) 4693-4697 (with A. Mihajlov, N. Sakan, D. Šulić, V. Srećković and I. Tkachenko)
50. *One-electron states and interband optical absorption in single-wall carbon nanotubes*. *J. Phys.: Condensed Matter* v. 19, #18 (2007), 186206 ( 18 pp) (with S. Tishchenko)
51. *Non-negative perturbations of non-negative self-adjoint operators*. *Methods Funct. Anal. Topology*, vol. 13, no. 2, 2007, 103 – 109 (ArXiv math-ph/0701004, 02 Jan 2007, 1 – 8)
52. *Charge screening in single-walled armchair carbon nanotubes*. ArXiv:cond-mat/0702254, 09 Feb 2007, 1 – 4 (with O. Smyrnov)
53. *Large radius exciton in single-walled carbon nanotubes*. *J. Phys. A: Math. Theor.* **40** 10519-10533 (2007) ( ArXiv:cond-mat.other/07042399, 18 Apr 2007, 1 – 12) (with O. Smyrnov))
54. *Effects of environmental and exciton screening in single-walled carbon nanotubes*. *J.Phys., Conf. Series* v. 129, 012012 (2008) ( arXiv:0807.3085 , 19 July 2008, 4) (with O. Smyrnov and S. Tshchenko)
55. *Linear, diatomic crystal: single-electron states and large-radius exciton*. *Fizika Nizkikh Temperatur*, v. 35, No. 5, (2009) 503–509 (*Low Temp. Phys.* , v.35, No. 5, 394 - 399) (arXiv:0804.0449, 02 April 2008, 8) (with O. Smyrnov)
56. *Modified Krein Formula and Analytic Perturbation Procedure for Scattering on Arbitrary Junction*. *Operator Theory: Advances and Applications* , v. 190 ( 2009), 3-26 (with B. Pavlov and A. Yafyasov)
57. *The dynamic conductivity of strongly non-ideal plasmas: is the Drude model valid?* *J. Phys. A: Math. Theor.* **42** (2009), 214005 (5pp) (A A Mihajlov, N M Sakan, V A Srećkovi´c and I M Tkachenko)
58. *Local Scattering Problem and a Solvable Model of Quantum Network*. *Operator Theory: Advances and Applications* , v. 198 ( 2009), 1-10 (with B. Pavlov)
59. *The self-consistent determination of HP electro-conductivity of strongly coupled plasmas*. *Physics Letters A* 374 (2010), 754-760 (with V A Srećkovi´c, Lj. M. Ignjatovi´c and A A Mihajlov)

## 6.- CONFERENCES

Harmonic Analysis and Operator Theory, Int. Conference to celebrate the 80th birthday of M. Cotlar, Caracas, Venezuela, January 3-8, 1994

"Geometrie and Quanten Physik" Int. Conference of Sfb 288, Medzyzdroje, Poland, March 13-19, 1994

Banach Center Semester "Linear Operators", Warsaw Poland, March 19-26, 1994

Recent Development in Schuranalysis, Int. Seminar in honour of the 80th Birthday of V.P.Potapov (1914-1980), Leipzig, Germany, August 22-26, 1994

The Third International Congress on Industrial and Applied Mathematics (ICIAM 95), Hamburg, Germany, 3. - 7. July 1995

International Workshop on Operator Theory and Applications (I W O T A 95), Regensburg, Germany, July 31 - August 4, 1995

Banach Center Semester "Linear Operators II", Warsaw, Poland, February 5-12, 1996

International Symposium "Mathematical Theory of Networks and Systems" (MTNS-96), Saint Louis, Missouri, USA, June 24-28, 1996

Sattelite Conference "Aspects of Spectral Theory" (2nd Europ. Congr. of Math), Vienna, Austria, July 14-18, 1996

GAMM 97 (75 anniversary session of Society of Applied Mathematics and Mechanics), Regensburg, Germany, March 24-27, 1997

Conference in Operator Theory( in Honour of M.Livsic 80-th Birthday), Beer-Sheva, Israel, June 29 - July 4, 1997

International Mark Krein conference "Operator Theory and Applications", Odessa, Ukraine, August 18-22, 1997 .

International Workshop on Operator Theory and Applications (I W O T A 98), Groningen, Netherlands, June 30 - July 3, 1998

International Conference "Special Topics in Physics of Liquids", Odessa, Ukraine, May 31 - July04, 1999.

International Workshop on Analysis of Vibrating Systems, Canmore, Alberta, Canada, September 25 - 28, 1999.

International Conference "Functional Analysis 2000", Valencia, Spain, July 03 - 08, 2000

International Colloq. on Operator Theory in Honor of Israel Gohberg Merited Professorship, TU-Wien, Vienna, Austria, January 18-19, 2001.

International Conference "Operator Theory and its Applications in Mathematical Physics", Bedlewo, Poland, May 11-17, 2002

International Conference on Functional Analysis and its Applications dedicated to the 110th anniversary of Stefan Banach, May 28-31, 2002, Lviv, Ukraine

International Workshop on the Physics of Nonideal Plasmas (PNP -11), Polytechnical University of Valencia, Valencia, Spain, March 20 - 25, 2003

3rd Workshop "Operator Theory in Krein Spaces and Nonlinear Eigenvalue Problems", Berlin, Germany, December, 12 -14, 2003

International Colloquium on Operator Theory (on the occasion of the retirement of Heinz Langer), Vienna, Austria, March, 4- 6, 2004

International conference "Operator Theory and Applications in Mathematical Physics" (OTAMP 2004) (July 6-11, 2004, Bedlewo Conference Center, Poland).

4th Workshop "Operator Theory in Krein Spaces and Applications" Berlin, Germany, December 17-19, 2004

"Statistical Physics 2005: Modern Problems and New Applications", Annual Conference in Ukraine, August 28-30, 2005, Lviv, Ukraine

5th Workshop "Operator Theory in Krein Spaces and Applications" Berlin, Germany, December 16-18, 2005

International conference "Operator Theory and Applications in Mathematical Physics" (OTAMP 2006) (June 16-21, 2006, Lund, Sweden)

International conference "Statistical Physics 2006 (Condensed matter: Theory & Applications)" (September 12 -15, 2006, Kharkiv, Ukraine)

6th Workshop "Operator Theory in Krein Spaces and Operator Polynomials" Berlin, Germany, December 14-17, 2006

International conference "Modern Analysis and Applications – 2007 (dedicated to the centenary of Mark Krein)" Odessa, Ukraine, April 09 – 14, 2007

7th Workshop "Operator Theory in Krein Spaces and Spectral Analysis" Berlin, Germany, December 13 - 16, 2007

8th Workshop "Operator Theory in Krein Spaces and Inverse Problems" Berlin, Germany, December 18 - 21, 2008

The 3-rd Conference "Statistical Physics: Modern Trends and Applications" (23-25 June 2009, Lviv, Ukraine)