

# CURRICULUM VITAE

**Surname:** Vassalos  
**First Name** Paraskevas (Paris)  
**Date & Place of Birth:** 31st of October 1971 — Athens  
**Nationality:** Greek  
**Position:** Assistant Professor in Department of Informatics  
Athens University in Economics and Business.  
**Address:** Athens University of Economics and Business  
76, Patission Str., GR 10434, Athens, Greece.  
**Telephone:** Office: +30-210-8203187  
Mobile: +30-694-0085003

## Research Interests:

Numerical Linear Algebra, (Structured) Matrix Theory, Asymptotic Linear Algebra, Approximation Theory, Spectral Theory and Numerical Algorithms for linear systems coming from PDEs, Multigrid Methods.

## Positions :

**2010-** Assistant Professor in the same Department.  
**2006-10** Lecturer in the Department of Informatics of Athens University of Economics & Business.  
**2004-05** PostDoc researcher in Universita Degli Studi Di Genova.

## Education :

**2003** PhD in Mathematics (University of Ioannina).  
**1998** Master Degree in Applied Mathematics and Informatics (University of Ioannina).  
**1994** Bachelor Degree in Mathematics (University of Ioannina).

Languages: English (very good)  
French (poor)

## Working Experience

<b>2005-2006</b>	<i>Adjunct Lecturer.</i> Department of Mathematics, University of Ioannina.
<b>2003-2004</b>	<i>Researcher.</i> University Degli Studi di Genova, Italy.
<b>1999-2000</b>	<i>Research Assistant</i> in Technological Educational Institute of Epirus.
<b>2000-2006</b>	<i>Systems Administrator</i> in Computer Center of University of Ioannina.
<b>2007-2009</b>	<i>Member of the Scientific Committee for Numeracy.</i> General Secretary of Lifelong Learning, Greece.

## Teaching Experience

### **Athens University of Economics and Business.**

Computational Mathematics - compulsory undergraduate course (2007- ).  
Applied Numerical Analysis - module compulsory undergraduate course (2009- ).  
Scientific Computing - graduate course (2006- )  
Information Systems in the Financial Sector - graduate course (2007- )  
Introduction to Computer Science - compulsory undergraduate course (2006- ).  
Introduction to Programming - undergraduate course (2006, 2008)

### **Universita' dell'Insubria - sede di Como.**

Numerical methods for structured linear systems - Phd course (2008, 2010, 2011 ).

### **Università degli Studi di Perugia.**

Krylov subspace method for structured linear systems - Phd course (2012 ).

### **University of Ioannina.**

Numerical Linear Algebra - module compulsory undergraduate course (2005- 2006) .  
Introduction to Symbolic Computations with Mathematica - module compulsory undergraduate course(2005).  
Numerical Analysis (Teaching Assistant) - compulsory undergraduate course (1998-2003).

### **Technological Educational Instituted of Epirus**

Introduction to Programming (I&II) -required undergraduate course(1999-2000).

### **Phd Student**

- Nikos Barakitis (2015-) Supervisor
- Anastasios Garavelis (2013-). Member of supervisory committee.
- George Konidaris (2012-). Member of supervisory committee.
- Eustathios Stathopoulos (2012-). Member of supervisory committee.
- Dimitrios Mavroidis (2005-2009). Member of supervisory committee.

### **Master's student thesis advised**

- Ioannis Gkoufas (2011).

### **Undergraduate student thesis advised**

- Panagiotis Spyraakis(2015).
- Taousanis Konstantinos (2015).
- George Vixos (2012).

### **Conferences Committee**

- Scientific member committee in HERCMA 2007, 2009.
- Local organization committee in NUMAN 2012.

### **Talks and Presentations**

More than 30 research talks in conferences and universities in the last 10 years, some of them (see page 5) as invited speaker.

### **Referee activity**

Applied Numerical Mathematics, Electronic Journal of Linear Algebra, Linear Algebra and its Applications, Mathematical Reviews, Numerical Algorithms, Numerical Linear Algebra with Applications, SIAM Numerical Analysis, SIAM Scientific Computing.

# PUBLICATIONS

- [ A1 ] “*Numerical methods for structured linear systems*”, Master Thesis, University of Ioannina.
- [ A2 ] “*Preconditioned techniques for the solution of Toeplitz systems*”, PhD Thesis, University of Ioannina.
- [ B1 ] “*New Band Toeplitz Preconditioners for ill-conditioned symmetric positive definite systems*”, SIAM J. MATRIX ANAL. APPL. Vol 23(2002), pp 728-743. With D. Noutsos.
- [ B2 ] “*Spectral equivalence and matrix algebra preconditioners for multilevel Toeplitz systems: a negative result*”, CONTEMPORARY MATHEMATICS, Vol. 323 (2003), pp. 313-322 [Fast algorithms for structured matrices: theory and applications]. With D. Noutsos and S. Serra Capizzano.
- [ B3 ] “*Matrix algebra preconditioners for multilevel Toeplitz systems do not get Superlinear convergence*”, THEORETICAL COMPUTER SCIENCE, Vol. 315 (2004), pp. 557-579. With D. Noutsos and S. Serra Capizzano.
- [ B4 ] “*Preconditioning techniques for ill-conditioned symmetric Block Toeplitz systems*”, NUMERICAL LINEAR ALGEBRA AND ITS APPLICATIONS , Vol. 12 (2005), pp. 231-239. With D. Noutsos and S. Serra Capizzano.
- [ B5 ] “*Asymptotic behavior of the condition number of two level Toeplitz matrix sequences*”, LINEAR ALGEBRA AND ITS APPLICATIONS., Vol 395 (2005), pp. 121-140. With D. Noutsos and S. Serra Capizzano.
- [ B6 ] “*Two level Toeplitz preconditioning: Approximation results for matrices and functions*”, SIAM J. SCI. COMPUT., Vol 28 (2006), No. 2 pp. 439-458. With D. Noutsos and S. Serra Capizzano.
- [ B7 ] “*Block Band Toeplitz preconditioners derived from generating function approximation*”, NUMERISCHE MATHEMATIK , Vol 104 (2006), No.3 pp. 339-376 . With D. Noutsos and S. Serra Capizzano
- [ B8 ] “*The conditioning of FD matrix sequences coming from semi-elliptic differential equations*”, LINEAR ALGEBRA APPL. Vol 428 (2008) pp 600-624. With D. Noutsos and S. Serra Capizzano.
- [ B9 ] “*Superlinear Convergence for PCG using band plus algebras preconditioners for Toeplitz Systems*”, COMPUTERS AND MATHEMATICS WITH APPLICATIONS, Vol 56 (2008), pp. 1255-1270. With D. Noutsos.
- [ B10 ] “*Band plus Algebra Preconditioners for two-level Toeplitz Systems*”, BIT, Vol 51 (2011), pp. 695-719. With D. Noutsos.
- [ B11 ] “*A general tool for determining the asymptotic spectral distribution of Hermitian matrix-sequences*”, OPERATORS AND MATRICES, Vol 9 (2015), pp. 549-561. With C. Garoni, and S. Serra Capizzano.
- [ B12 ] “*Essential spectral equivalence via multiple step preconditioning and applications to ill conditioned Toeplitz matrices*”, LINEAR ALGEBRA APPL., In Press, <http://dx.doi.org/10.1016/j.laa.2015.08.021> , with D. Noutsos and S. Serra Capizzano.
- [ B13 ] “*Asymptotic results on the condition number of FD matrices approximating semi-elliptic PDEs.*” (submitted).

# PARTICIPATION IN RESEARCH PROGRAMS

1. 1-1-2012– 30-9-2015  
Member of the research team of Athens University Economics and Business participated in the research program “ **DISCO: Distributed Wireless Communications** of the framework **Thales**, funded by the the European Community and the Ministry of Education. Budget € 430000.
2. 1-3-2011 – 30-6-2012  
Primary Research Investigator in “**Optimal multigrid schemes for (multilevel) Toeplitz linear systems**” (BRFP III). Grant by AUEB’s Research Center. Budget € 7500. The proposal evaluated with 8.95/10.
3. 1-3-2010 – 28-2-2011  
Primary Research Investigator in “**Spectral equivalence of ill conditioned Toeplitz matrices with matrix algebras matrices**” (BRFP II). Grant by AUEB’s Research Center. Budget € 7500. The proposal evaluated with 8.85/10.
4. 1-3-2009 – 28-2-2010  
Primary Research Investigator in “**Strategies for solving optimally, ill-conditioned Toeplitz and Toeplitz-like systems**” (BRFP I). Grand by AUEB’s Research Center. Budget € 9800. The proposal evaluated with 9.45/10.
5. 1-4-2008 – 28-2-2009  
Member of the Scientific Committee of the program “**METER**” (**Monitoring and improving e-Trainers Competencies in a Lifelong Learning Environment**) of Greek Ministry of Education.
6. 1/3/2004 – 31/8/2007  
Senior researcher in No 1702 program of Ministry of Education (in the framework of the program “Pythagoras I”) entitled “ **Solution of Toeplitz systems and applications to the stochastic models** ” . Budget € 105000.
7. 1/9/2003 – 29/2/2004  
Postdoctoral researcher in No 2102 research program of Universita Degli Studi Di Genova “**(MAT/08 ANALISI NUMERICA)**” as a PostDoc researcher, with Associate Professor F. Di Benedetto in charge.
8. 1/3/2003 – 31/8/2005  
Researcher in No 1332 program of Research Committee of University of Ioannina entitled “ **Scientific computations in new technologies (Greek-Italian collaboration)** ”
9. 1-1-2000 – 31-12-2000  
Main researcher in No 830 program of the Research Committee of the University of Ioannina with the subject “ **Numerical methods for the study of interaction between atoms under laser pulse**”.
10. 1/12/1997 – 31/5/1998  
Researcher in No 647 PENED’95 program of the Greek Ministry of Development with title “ **Nonoverlapping Domain Decomposition Methods for the Numerical Solution of Partial Differential Equations** ”.

11. 1/10/1996 – 30/9/1997

As a graduate student in No 586 Program of the Research Committee of the University of Ioannina with the subject “ **Iterative Methods and Conjugate Gradient Methods for the Numerical Solution of Toeplitz Linear Systems** ” with Associate Professor Dimitrios Noutsos in charge.

## SIGNIFICANT RESEARCH ACHIEVEMENTS

### Invited speaker

- “ *Spectral and structural analysis of FD matrix sequences arising in semi-elliptic differential equations.*”, **Structured Linear and Multilinear Algebra Problems: Analysis, Algorithms and Applications**, September 10-14/2012, Leuven, Belgium.
- “ *Preconditioners for ill conditioned (block) Toeplitz systems: facts and ideas*”, **Structured Linear Algebra Problems: Analysis, Algorithms and Applications**, September 15-19/2008, Cortona, Italy.
- “*Preconditioning ill-conditioned Toeplitz systems by algebras plus band Toeplitz matrices*”, **Nonlinear Approximations in Numerical Analysis**, June 22 - 26/2007 Moscow, Russia.
- “*Spectral analysis of the matrix-sequences coming from the Finite Difference approximation of semi-elliptic Differential Equations*”, **2nd International Conference on Structured Matrices**, June 7-11/2006 Hong Kong.
- “*Two level Toeplitz preconditioners and approximation results*”, **International Conference on Matrix Methods and Operator Equations**, June 20 - 24/2005 Moscow, Russia.
- “*Preconditioning Technique for Ill-conditioned Symmetric Block Toeplitz Systems*”, **International Conference on Structured Matrices**, May 29-June 2, 2002, Hong Kong.
- “*New band Toeplitz Preconditioners for ill-conditioned symmetric positive definite Toeplitz systems*”, **Structured matrices: analysis, algorithms and applications**, Cortona , Italy, September 19–24, 2000.

### Distinct Publications

- The works [B6], and [B7] have been published in A\* journals according to ERA2010 ranking.
- The works [B1], [B3], [B4], [B5], [B8], and [B9] have been published in A journals according to ERA2010 ranking.