

## CURRICULUM VITAE

2016

*Name:* Thanases (or Athanasios) C. Pheidas

*Address:* Department of Mathematics, University of Crete, 71409 Herakleion, Crete, Greece (tel. 30-2810-393836)

*Electronic mail address:* pheidas@math.uoc.gr

*Web page:* <http://www.math.uoc.gr:1080/proswpiko/dep/pages/pheidas>

*Place and year of birth:* Athens, Greece, 1958

*Military duty:* (as obliged by the Greek Constitution): June 1986-June 1987

### Education

*High school diploma:* Varvakeios Protypos Schole, Athens, Greece, June 1976

*Bachelor of Science:* University of Patras, Greece, May 1981

*Graduate student - Teaching Assistant towards the Ph.D. degree in Mathematics:* Purdue University, U.S.A., August 1981-August 1985. Also graduate student, Katholieke Universiteit Leuven, Belgium, spring semester 1984

*Ph.D. Thesis:* Purdue University, U.S.A. August 1985

*Thesis Title:* The diophantine problem for addition and divisibility in polynomial rings

*Research Area:* Mathematical Logic and applications to Algebra and the Theory of Computation

*Thesis advisor:* Leonard Lipshitz

### Professional Experience

*Assistant Professor* (on a tenure track appointment), Department of Mathematics, Florida International University, Miami, U.S.A., August 1985 - May 1986 and June 1987 - August 1989

*Postdoctoral Researcher*, Computer Technology Institute, Patras, Greece, September 1986 - May 1987

*Visiting Assistant Professor*, Department of Mathematics, University of Illinois at Urbana-Champaign, U.S.A., August 1989-January 1991

*Assistant Professor*, Department of Mathematics, University of Crete, Greece, January 1991 - September 1996

*Associate Professor*, Department of Mathematics, University of Crete,

Greece, September 1996 - January 2004

*Professor*, Department of Mathematics, University of Crete, Greece, since January 2005.

*Visiting Faculty*, Purdue University, U.S.A., Spring Semester 2006

*Invited Researcher*, Hausdorff Research Institute for Mathematics, Bonn, Germany, January-February 2009.

*Invited Senior Researcher* by the State of Chile, University of Concepcion and University of Talca, Chile, July-October 2012.

*Visiting Scholar*, Purdue University, U.S.A., Spring Semester 2014.

### Research papers-published and accepted

- [1]. *The diophantine problem for addition and divisibility in polynomial rings*, accepted for publication in Transactions of the American Mathematical Society
- [2]. *An undecidability result for power series rings of positive characteristic*, Proceedings of the American Mathematical Society, 99-2 (1987), 364-366
- [3]. *An undecidability result for power series rings of positive characteristic II*, Proceedings of the American Mathematical Society, 100-3 (1987), 526-530
- [4]. *Hilbert's tenth problem for a class of rings of algebraic integers*, Proceedings of the American Mathematical Society, 104-2 (1988), 611-620
- [5]. *Hilbert's tenth problem for rational function fields over finite fields*, Inventiones Mathematicae, 103 (1991), 1-8
- [6]. *Extensions of Hilbert's tenth problem*, Journal of Symbolic Logic, 59-2 (1994), 372-397
- [7]. (With L. Lipshitz) *An analogue of Hilbert's tenth problem for  $p$ -adic entire functions*, Journal of Symbolic Logic, 60-4 (1995), 1301-1309
- [8]. *The diophantine theory of a ring of analytic functions*, Journal für die reine und angewandte Mathematik, 463 (1995), 153-167
- [9]. (With K. Zahidi) *Undecidable existential theories of polynomial rings and function fields*, Communications in Algebra, 27-10 (1999), 4993-5010
- [10]. (with K. Zahidi) *Undecidability of existential theories of rings and fields: A survey*, Contemporary Mathematics, 270 (2000), 49-106
- [11]. *An effort to prove that the existential theory of  $Q$  is undecidable*, Contemporary Mathematics 270 (2000), 237-252
- [12]. *Endomorphisms of elliptic curves and undecidability in function fields of positive characteristic*, Journal of Algebra 273 (2004), no. 1, 395-411.
- [13]. *Diophantine undecidability for addition and divisibility in polynomial rings*, Fundamenta Mathematicae, 182 (2004), 205–220.
- [14]. (with K. Zahidi) *Elimination theory for addition and the Frobenius map in polynomial rings*, the Journal of Symbolic Logic, 69-4 (2004), 1006-1026.
- [15]. (With G. Cornelissen and K. Zahidi) *Division-ample sets and the Diophantine problem for rings of integers*, Journal de Theorie des Nombres

de Bordeaux, 17 (2005), 727-735.

[16]. (with X. Vidaux) *Extensions of Buchi's problem: Questions of decidability for addition and  $k$ -th powers*, Fundamenta Mathematicae, 185 (2005), 171-194.

[17]. (With K. Zahidi) *Analogues of Hilbert's tenth problem*, Model theory with Applications to Algebra and Analysis Vol. 2 (Eds. Zoe Chatzidakis, Dugald Macpherson, Anand Pillay, Alex Wilkie), London Math Soc. Lecture Note Series Nr 250, Cambridge Univ Press, 2008.

Subsets of it have been presented at

(a) American Institute of Mathematics (ARCC), workshop on Extensions of Hilbert's tenth problem:

<http://www.aimath.org/ARCC/workshops/hilberts10th.html>

(b) The Newton Institute, workshop on An Introduction to recent applications of Model Theory,

<http://www.newton.cam.ac.uk/programmes/MAA/maaw01.html>

[a printed version as well as a recording of the talk can be found at]

<http://www.newton.cam.ac.uk/webseminars/pg+ws/2005/maa/maaw01/0406/pheidias/>

[18]. (with X. Vidaux) *The analogue of Buchi's problem for rational functions*, Journal of London Mathematical Society, (2) **74** (2006), 545-565.

[19]. (with X. Vidaux) *The analogue of Buchi's problem for cubes in rings of polynomials* Pacific Journal of Mathematics, **238-2** (2008), 349-366.

[20] (with H. Pasten and X. Vidaux) *A survey on Büchi's problem: new presentations and open problems*, Zapiski POMI Zapiski POMI **377** (2010), 111-140

(and Journal of Math. Sciences, Springer)

[21] (with X. Vidaux) *The analogue of Buchi's problem for rational functions; Errata*, Journal of the London Mathematical Society, **82** (2010), 273-278.

[22] (with H. Pasten and X. Vidaux) *Uniform existential interpretation of Arithmetic in rings of functions of positive characteristic*, Inventiones Mathematicae, **196-2** (2014), 453-484.

### **Research papers - unpublished**

[24]. *On the number of multiplications required for the evaluation of a polynomial*, Technical Report No 28, University of Crete.

### **Research papers - under preparation**

. (with K. Zahidi) *Model completeness and decidability for addition and the Frobenius map in power series rings*

### **Other scientific work:**

(co-)Editor of the translation into Greek of the book *Elements of Discrete Mathematics*, C.L. Liu (published by the University Publishing Company of Crete).

(co-)Editor of the translation into Greek of the book *A Mathematical Introduction to Logic*, H.B. Enderton (published by the University Publishing Company of Crete).

## 0.1 Advisor of Doctoral Thesis

1. *Co-advisor* (with Xavier Vidaux, Department of Mathematics, University of Concepcion, Chile) of the Doctoral Thesis of the Graduate Student Jose-Luis Riquelme (to be granted).

2. *Co-advisor* (with Xavier Vidaux, Department of Mathematics, University of Concepcion, Chile) of the Doctoral Thesis of the Graduate Student Hector Pasten.

[*granted*: University of Concepcion (Chile), 2010

*current position*: Fellow, Harvard University and Advanced Research Institute (U.S.A.)

3. *Co-advisor* (with Jan Van Geel, Department of Mathematics, University of Gent, Belgium) of the Doctoral Thesis of the Graduate Student and Teaching Assistant Jeroen Demeyer.

[*granted*: University of Gent (Belgium), 2006,

*current position*: Fellow of the Flemish Research Foundation (FWO), University of Ghent (Belgium); former position at Scuola Normale Superiore di Pisa, with a fellowship from FWO.

4. *Co-advisor* (with Jean-Louis Duret, Department of Mathematics, University of Angers, France) of the Ph. D. Thesis of Xavier Vidaux

[*granted*: University of Angers, September 2001,

*current position*: University of Concepcion, Chile; former position at Oxford University - United Kingdom, with a Marie Curie individual fellowship of the European Union].

5. *Co-advisor* (with Jan Van Geel, Department of Mathematics, University of Gent, Belgium) of the Ph. D. Thesis of Karim Zahidi

[*granted*: University of Gent, November 1999,

*current position*: University of Anvers - Belgium; former position at University of Paris VI, France, with a Marie Curie individual fellowship of the European Union].

## 0.2 Research Fellowships-Grants

1. Research workshop *Definability and Decidability problems in Number Theory* at the *American Institute of Mathematics*, Palo Alto, September 2013.
2. Chile *Senior Researcher Program*, University of Concepcion and University of Talca, Chile, July-October 2012.
3. *Senior Researcher* for the direction of the Research Project of the Post-Doctoral Researcher *Alla Sirokofskich*, University of Leeds UK and University of Crete Greece, April 2012-April 2014.
4. *Visiting Researcher*, *Hausdorff Institute, Bonn*, (Trimester on Diophantine Equations), Germany, January-February 2010.
5. European Union- Human Capital and Mobility Programme, participant in the Model Theory Network MODNET, 2004-2006.
6. European Union- Human Capital and Mobility Programme, participant in the Model Theory Network (coordinated by the Model Theory group of the University of Paris), 1993-1996.
7. Research Account of the University of Crete, September 1991-1993.
8. National Science Foundation, U.S.A., extension of grant DMS-8605198, June 1989-June 1991.
9. National Science Foundation, U.S.A., grant DMS-8605198, June 1987-June 1989.
10. Purdue Science Foundation, David Ross Grant, August 1984-August 1985.

### 0.3 Invited talks in 2010-2016

- Oberwolfach Research Institute for Mathematics (MFO), Workshop: Definability and Decidability Problems in Number Theory, October 2016.
- Conference in honor of C. Dimitrakopoulos, University of Athens, Greece, November 2014.
- Logic Seminar, University of Notre Dame, USA., 2014
- Logic Seminar, University of Illinois at Urbana-Champaign, USA., 2014
- *Congreso de matematica capriconio* (COMCA 2012), University of Antofagasta, Chile, August 2012.
- *Qolloquium* University of Talca, Chile, August 2012.
- *Qolloquium* University of Concepcion, Chile, August 2012.
- *Logic Seminar*, University of Napoli, Italy, March 2012.
- *Logic Seminar*, University of Napoli, Italy, February 2011.
- *Colloquium*, Department of Mathematics, Purdue University (USA.), March 2011
- *Midwest Meeting in Logic*, University of Illinois at Chicago (USA), March 2011
- *Mathematics Seminar*, University of Bio Bio (Chile), April 2011
- Conference *Definability in Number Theory*, University of Ghent (Belgium), September 2010



## 1 Teaching

- Have taught continuously since the Ph.D. years (1981). Have taught all major undergraduate subjects (Calculus and Analysis, Differential Equations and Applied Mathematics, Algebra and Number Theory, Geometry, Logic, Discrete Mathematics, Theory of Computation etc.) except for courses on Statistics. Have introduced experimental courses on subjects such as Graph Theory and Galois Theory.
- Have taught post-graduate courses in all Universities I have worked. The subjects have varied from Logic and Model Theory, to Algebra, to Discrete Mathematics to Theory of Computation and Algorithms.
- Have taught specialized post-graduate courses in Summer Schools and Special Events. A few latest examples:
  - a) University of Napoli (Italy), March 2011,
  - b) Summer School, University of Crete (Greece), July 2011.
  - c) Newton Institute, Cambridge University (UK), 2005.
- Participation to and organization of exchange of students through projects such as the Erasmus Program of the European Union.

## 2 Organizational activities

- Scientific Committee of the Panhellenic Logic Symposium 2015.
- *Invited Instructor* to the graduate program of the Department of Mathematics, Universita di Napoli, Italy, through the Erasmus exchange program, February 2011.
- Participant to the Graduate Program on Logic and Algorithm of the University of Athens, Greece 2000 - to now.
- Participant to the Graduate Program and the Research Program FONDECYT (Researcher in charge: Xavier Vidaux) of Universita de Concepcion, Chile, 2007-now.

- *Co-organizer* (with G. Everest) of *Number Theory and computability*, International Center for the Mathematical Sciences (ICMS), Edinburgh, Scotland, UK <http://www.icms.org.uk/> United Kindom, June 25-30, 2007.
- In charge of the new phase of the program: *Current trends in Mathematics: Algebra, Geometry, Differential Equations, Numerical Analysis, Applications to Biology*, funded by the European Commission, under the responsibility of the Foundation for Research and Technology - Hellas (FORTH), 2005-2006 (five conferences).
- *Co-organizer* (with E. Kranakis and E. Kirousis) of *Anogia Algorithmica*, Academic Village of Anogia, Crete (Greece), June 2005.
- *Co-organizer* (with E. Zachos) of the *Panhellenic Logic Symposium*, Anogia Academic Village, Greece, July 2001.
- *Co-organizer* (with G. Cornelissen, J. Denef, J.V. Geel and L. Lipshitz) of the *Workshop on Hilbert's Tenth Problem- Relations with Arithmetic and Algebraic Geometry*, Gent, Belgium, November 1999.
- *Member of the Organizing Committee* of the *Conferences in Mathematics on Crete*, a series of conferences which are held each summer in Crete and have been supported by the programme Training and Mobility of Researchers between 1994-2000.
- *Local coordinator* of an Erasmus chain (exchange of students funded by the European Union)-main coordinator: A. Warrinnier, Katholieke Universiteit, Leuven, Belgium, 1993-1997.
- *Co-organizer* (with J. Antoniadis and N. Tzanakis) of the *Summer School in the Arithmetic of Elliptic Curves*, Crete, July 1994.
- *Co-organizer* (with J. Antoniadis) of the *Summer School in the Model Theory of Fields*, Crete, July 1993.

### 3 Citations

As of May 2016, according to the search-machine 'Google Scholar', the number of citations was 485.