



September 2009–August 2011: Postdoctoral fellow, Department of Mathematics, University of Maryland, College Park. **Funding by NSF grants** DMS-0807811 & DMS-0807815  
Advisors: Professor Ricardo H. Nochetto & Professor Konstantina Trivisa

### **DISTINCTIONS/AWARDS/GRANTS**

- February 2012–January 2015: Grant (**€150,000**) within the action “Support of the Postdoctoral fellows”, co-funded by the ESF (**E**uropean **S**ocial **F**und)–European Union and National Resources of the Greek State under the Operational Program “Education and Lifelong Learning (EdLL)”
- June 2007 – August 2009: Marie Curie Early Stage Fellow in Program DEASE (**D**ifferential **E**quations with **A**pplications in **S**cience and **E**ngineering), FORTH (**F**oundation for **R**esearch & **T**echnology-**H**ellas)
- October 2007 – August 2009: Scholarship from “THE A.G. LEVENTIS FOUNDATION”
- October 2007 – August 2009: Scholarship from the “ONASSIS FOUNDATION” (one of the most prestigious fellowships among young Greek researchers)
- September 2005 – August 2006: “Manasaki” Scholarship, for academic excellence
- March 2005 – July 2005: Fellow in the Research Training Network HYKE (**H**Yperbolic and **K**inetic **E**quations: Asymptotics, Numerics, Analysis) (FORTH)
- February 2005 – July 2005: “Stelios Pechorides” Scholarship (FORTH), after successful exams
- September 2003 – June 2005: Scholarship from IKYK (Cyprus State Scholarships Foundation) (awarded with academic excellence as the sole selection criterion)
- July 2, 2003: – Award from the Department of Mathematics and Statistics of the University of Cyprus for academic excellence (for having the highest GPA among my fellow students)  
– “Stelios Pechorides” award from the Department of Mathematics and Statistics of the University of Cyprus for academic excellence (for having the highest GPA in Pure Mathematics among my fellow students in the four years of my studies)
- July 19–25, 2002: Participation in the 9<sup>th</sup> International Mathematics Competition (IMC) for University students that took place in Warsaw, Poland

### **INVITED TALKS**

- “Higher order in time ALE formulations: Stability & Error Analysis”, University of Leicester (October 25, 2012)
- “On the design and error control of higher order in time ALE formulations”:
  1. University of Oxford (November 8, 2012)
  2. University of Dundee (June 28, 2012)
- “Error control and Adaptivity: Singular problems & Problems on moving domains”, The University of Manchester (October 6, 2011)

- “Error analysis of time-discrete higher order ALE formulations”:
  1. University of Sussex (June 2, 2011)
  2. University of Crete (May 6, 2011)
  3. University of Maryland (April 19, 2011)
- “A posteriori error estimates for approximations of Schrödinger-type and semilinear parabolic equations”:
  1. University of Maryland (April 13, 2010)
  2. Texas A & M University (January 13, 2010)
- “Numerical methods for Schrödinger type equations”, University of Cyprus (October 24, 2007)

#### PRESENTATIONS IN CONFERENCES

- “A posteriori error control and adaptivity for Schrödinger equations”, SIAM Conference on Computational Science and Engineering (invitation to participate on the minisymposium “Numerical Methods and Analysis for Nonlinear Dispersive Equations and Applications”), Boston, Massachusetts, USA (February 25–March 1, 2013)
- “Error control & adaptivity for Schrödinger equations”, 6<sup>th</sup> Workshop on Numerical Methods for Evolution Equations (invited), Heraklion-Crete, Greece (September 21–22, 2012)
- “Time-discrete higher order ALE formulations: A posteriori error analysis”, Fifth Conference in Numerical Analysis, Ioannina, Greece, (September 5–8, 2012)
- “dG Time-discrete ALE formulations: A posteriori error analysis”, European Finite Element Fair 2012, Bilbao, Basque Country, Spain (June 8–9, 2012)
- “Higher order methods in time for the ALE formulations”, Conference on Computational Complex Analysis and Approximation Theory (honoring Professor Nicholas Papamichael), Protaras, Cyprus (June 5–11, 2011)
- “Error analysis of higher order in time ALE formulations”, poster presentation in conference “Women in Applied Mathematics”, ACMAC (Archimedes Center for Modeling, Analysis & Computation), Heraklion, Greece (May 2–5, 2011)
- “A posteriori error control for semidiscrete approximations of semilinear parabolic equations”, “3<sup>rd</sup> annual DEASE meeting”, IACM-FORTH & University of Crete (May 27–31, 2009)
- “A posteriori error estimates for numerical approximations of semilinear parabolic and Schrödinger type equations”, University of Bonn (January 28, 2009)
- “A posteriori error control for approximations of Schrödinger equations”, “2<sup>nd</sup> annual DEASE meeting”, Universität Hamburg (September 18–20, 2008)
- “A posteriori error estimates for linear Schrödinger type equations”, “1<sup>st</sup> annual DEASE meeting (Summer School and meeting)”, WPI (Wolfgang Pauli Institute), Vienna (July 09–15, 2007)

#### SCHOOLS

- Attendance of Lipschitz lectures by Professor R.H. Nochetto on “Adaptive FEM: Theory and Applications to Geometric PDE”, University of Bonn (January 20–February 05, 2009)
- Attendance of “The Sussex Summer School on Scientific Computation: ALBERTA finite elements”, University of Sussex (July 30–August 03, 2007)

#### SHORT VISITS

- October 21–October 28, 2012: Department of Mathematics, University of Leicester, UK
- October 29–November 9, 2012: Mathematical Institute, University of Oxford, UK
- January 11–27, 2012: Department of Mathematics, University of Maryland, USA

- May 30–June 2, 2011: Department of Mathematics, University of Sussex, UK
- February 13–19, 2011: Department of Mathematics, Texas A & M University, USA
- January 5–16, 2010: Department of Mathematics, Texas A & M University, USA

**RESEARCH INTERESTS**

- A posteriori error analysis and adaptive methods for evolution equations
- Numerical solution and error control of equations with singular behaviour (e.g., blow-up)
- Error analysis for the ALE (Arbitrary Lagrangian-Eulerian) formulations
- Finite element methods
- Time-splitting spectral methods
- Finite element relaxation schemes for hyperbolic balance laws

**TEACHING EXPERIENCE**

University of Cyprus: Instructor in Mathematics I, Department of Public & Business Administration and Department of Economics, Fall Semester 2011-2012

University of Maryland: Instructor in Elementary Statistics and Probability, Fall Semester 2010

University of Crete: Teaching assistant in:

- Calculus I, Department of Mathematics, Spring Semester 2004–2005
- Calculus I, Department of Computer Science, Fall Semester 2005–2006 & Fall Semester 2006–2007
- Analysis II, Department of Mathematics, Spring Semester 2006–2007
- Probability Theory I, Department of Mathematics, Fall Semester 2007–2008
- Analysis II, Department of Applied Mathematics, Spring Semester 2007–2008
- Analysis I, Department of Applied Mathematics, Fall Semester 2008–2009
- Numerical Analysis, Department of Mathematics Spring Semester 2008–2009 (teaching the programming language FORTRAN)

University of Cyprus: Teaching assistant in:

- Mathematics I, Department of Public & Business Administration, Fall Semester 2003–2004
- Calculus II, Department of Mathematics and Statistics, Spring Semester 2003–2004

**SCIENTIFIC COLLABORATORS**

Asst. Prof. Andrea Bonito (Texas A & M Univ.), Prof. Andreas Karageorghis (Univ. of Cyprus), Assoc. Prof. Theodoros Katsaounis (Univ. of Crete), Prof. Charalambos Makridakis (Univ. of Crete), Prof. Ricardo H. Nochetto (Univ. of Maryland), Asst. Prof. Michael Plexousakis (Univ. of Crete), Prof. Konstantina Trivisa (Univ. of Maryland)

**PUBLICATIONS**

- **ACCEPTED** (in reverse chronological order)

[P1] A. Bonito, I. Kyza, R.H. Nochetto, *Time discrete higher order ALE formulations: Stability*, to appear in SIAM J. Numer. Anal.

[P2] A. Bonito, I. Kyza, R.H. Nochetto, *Time discrete higher order ALE formulations: A priori error analysis*, to appear in Numer. Math.

- [P3] I. Kyza, Ch. Makridakis, *Analysis for time discrete approximations of blow-up solutions of semilinear parabolic equations*, SIAM J. Numer. Anal. **49** (2011) 405–426.
- [P4] I. Kyza, *A posteriori error analysis for the Crank-Nicolson method for linear Schrödinger equations*, M2AN Math. Model. Numer. Anal. **45** (2011) 761–778.
- [P5] I. Kyza, Ch. Makridakis, M. Plexousakis, *Error control for time-splitting spectral approximations of the semiclassical Schrödinger equation*, IMA J. Numer. Anal. **31** (2011) 416–441.
- [P6] A. Karageorghis, I. Kyza, *Efficient algorithms for approximating particular solutions of elliptic equations using Chebyshev polynomials*, Commun. Comput. Phys. **2** (2007) 501–521.

• **PREPRINTS**

- [P7] Th. Katsaounis, I. Kyza, *A posteriori error control & adaptivity for Crank-Nicolson finite element approximations for the linear Schrödinger equation*, submitted.
- [P8] A. Bonito, I. Kyza, R.H. Nochetto, *Time discrete higher order ALE formulations: A posteriori error analysis*.
- [P9] N. Gupta, I. Kyza, Ch. Makridakis, *A posteriori error analysis for Galerkin and RKc fully discrete schemes*.

• **IN PREPARATION**

- [P10] *A posteriori error analysis for Crank-Nicolson approximations for the two-dimensional cubic NLS*.
- [P11] *Higher order time-discrete approximations for ALE formulations: Numerical investigation* (with A. Bonito and R.H. Nochetto)

**REVIEWED FOR:**

SIAM J. Numer. Anal., Math. Comp., Appl. Numer. Math., Commun. Comput. Phys.

**LANGUAGES**

- Greek: native
- English: fluent, G.C.E. in English Language (Ordinary Level), (1998)