Curriculum di Cinzia Elia

Cinzia Elia è Ricercatrice Confermata presso il Dipartimento di Matematica dell'Università di Bari. La sua attività di ricerca si svolge principalmente nell'ambito dei sistemi dinamici numerici e dei sistemi dinamici discontinui. Ha pubblicato 15 articoli, molti dei quali su giornali di grande impatto internazionale quali Journal of Differential Equations, Journal of Dynamics and Differential Equations, SIAM Journal on Applied Dynamical Systems, BIT, Journal of Nonlinear Science.

Cinzia Elia ha completato il suo PhD nel 2005 presso lUniversità degli Studi di Bari con relatore il Prof. Luca Dieci del Georgia Institute of Technology di Atlanta, USA. Ha inoltre trascorso due anni presso il Georgia Institute of Technology in qualità di visiting student e ha scritto una tesi dal titolo: *SVD based techniques for the approximation of spectra: Theoretical and Numerical aspects*, dalla quale sono stati estratti due articoli.

Cinzia Elia ha partecipato a numerose conferenze internazionali di cui 7 in qualità di invited speaker. Fa parte del comitato organizzatore della conferenza Structural Dynamical Systems che si tiene con frequenza biennale presso l'Hotel Villaggio Porto Giardino di Capitolo, Monopoli. È stata organizzatore di due mini simposi all'interno della conferenza SCICADE, meeting biennale e mondiale di analisti numerici.

L'attività didattica svolta da Cinzia Elia è prevalentemente nell'ambito dell'Analisi Numerica con insegnamenti sia in corsi di base (quali Calcolo Numerico per Informatica e Laboratorio di Programmazione e Calcolo per il Corso di Studi di Scienze dei Materiali presso l'Università di Bari) che in corsi più avanzati (Metodi numerici e Modelli Matematici per la Laurea Magistrale in Matematica presso l'Università di Bari). Ha inoltre tenuto insegnamenti presso il Georgia Institute of Technology in corsi quali Ordinary Differential Equations, Calculus I and III.

Curriculum in English

Cinzia Elia is currently a Ricercatore (the equivalent of a tenured Assistant Professor) in the Department of Mathematics of the University of Bari. Her primary research interests are numerical dynamical systems and non smooth dynamical systems. She is the author of 16 published and accepted papers, appearing in leading topical journals such as Journal of Differential Equations, Journal of Dynamics and Differential Equations, SIAM Journal on Applied Dynamical Systems, BIT, Journal of Nonlinear Science.

Cinzia Elia completed her PhD in 2005 at the University of Bari under the guidance of Prof. Luca Dieci of the Georgia Institute of Technology in Atlanta, USA. During her PhD, she spent two years at Georgia Tech as a visiting graduate student. Her dissertation, SVD based techniques for the approximation of spectra: Theoretical and Numerical aspects, considers the numerical approximation of stability spectra of non-autonomous linear ODEs; her thesis work yielded two articles.

Elia's dissertation work has lead to several ongoing projects. Two additional papers on the computation of the exponential dichotomy spectrum on the whole real line, written in collaboration with Luca Dieci and Erik Van Vleck of the University of Kansas, extended results of her dissertation and found further applications in topics such as the study of stability of travelling waves. A more recent paper written in

collaboration with Roberta Fabbri of the University of Firenze, investigates the Cantor structure of the spectrum of the Schroedinger operator, via the joint use of techniques based on the rotation number and techniques for the computation of the exponential dichotomy spectrum.

Recent work by Cinzia Elia in the field of non-smooth dynamical systems develops an approach to Filippov's discontinuous systems and sliding solutions. In this context, she also studied stability properties of periodic orbits with partial sliding on co-dimension 1 and 2 sliding surfaces. In an application in the context of gene networks, she explored the equivalence between smooth sigmoidal and non-smooth models, in collaboration with Luciano Lopez and Nicolettta Del Buono of the University of Bari.

Cinzia Elia is actively involved in the broader scientific and mathematical community. She has attended numerous conferences since beginning graduate school, and has been invited to speak at 7 distinguished international conferences and workshops. She was a visiting professor at the Georgia Institute of Technology from 2011-2013 for one semester per year. In addition to her research work at Georgia Tech, she taught one undergraduate course each year.

She served as a referee for journals such as: Siam Journal of Numerical Analysis, Physica D, Nonlinear Dynamics, Journal of Computational and Applied Mathematics.

Cinzia Elia is in the organizing committee of the workshop SDS, Structural Dynamical Systems, held every other year in Capitolo, Monopoli, Italy. She has organized with Luciano Lopez the Minysimposia: "Discontinuous dynamical systems: theory and numerical methods", in the conference Scicade 2013 and Scicade 2015.