

## CURRICULUM VITAE OF DANIELE GARRISI

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### EMPLOYMENT HISTORY

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Assistant Professor at Inha University, 2012/03-2017/02.

Teaching two classes a semester for undergraduate students of the College of Mathematics Education at Inha University, in Incheon, South Korea. Duties include designing syllabus of the course, lecturing, tutoring students, grading assignments, midterms and final exams.

Postdoctoral fellow at Pohang Institute of Science and Technology (Postech), 2009/09-2012/03.

Carrying out research in non-linear Partial Differential Equations, writing research articles, presenting research results through department workshops and conferences, and contributing to the organization of events addressed to the dissemination of Mathematics, for instance, through museums' exhibitions.

Teaching Assistant at the Università di Pisa, 2007/02-2008/12.

Lecturing, tutoring, preparing exercises for oral and written exams, grading exams, performing administrative duties in the registration of the final scores.

### EDUCATION

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Ph.D., Scuola Normale di Pisa, 2008 (Advisors A. Abbondandolo and P. Majer)

"Ordinary differential equations in Banach spaces and the spectral flow"

M.S. in Mathematics, Università di Pisa, 2001 (Advisor V. Benci).

### COURSES TAUGHT AS A PROFESSOR (INHA UNIVERSITY)

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1. 2016 Fall Semester. Applied Analysis (EMT2226), seven students attended the course
2. 2016 Fall Semester. Differential Equations (EMT1128), forty-one students
3. 2016 Spring Semester. Measure Theory (EMT4425), three students
4. 2016 Spring Semester. Set Theory (EMT1135), forty-three students
5. 2015 Fall. Applied Analysis, five students
6. 2015 Fall. Differential Equations, thirty-six students

7. 2015 Spring. Set Theory, forty-four students
8. 2015 Spring. Measure Theory, two students
9. 2014 Fall. Applied Analysis, eleven students
10. 2014 Fall. Differential Equations, fifty students
11. 2014 Spring. Set Theory, forty-nine students
12. 2014 Spring. Measure Theory, two students
13. 2013 Fall. Set Theory (EP135), forty students
14. 2013 Fall. Applied Analysis (EP226), four students
15. 2013 Spring. Differential Equations (EP128), sixty-one students
16. 2012 Fall. Set Theory, fifty-two students
17. 2012 Fall. Applied Analysis, sixteen students
18. 2012 Spring. Differential Equations, thirty-two students
19. 2012 Spring. Measure and Integration (EP425), six students.

#### **COURSES TAUGHT AS A TEACHING ASSISTANT (UNIVERSITÀ DI PISA)**

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Teaching loads, number of students and a brief synopsis of the courses are included.

1. Fall 2008. Mathematical Analysis III, Faculty of Science, course of Physics, three hours a week, thirty students.

Syllabus. Multivariable calculus. Multiple integrals. Curves and surfaces in dimension two and three. Lagrange multipliers. Conservative vector fields. Line integrals. Green's Theorem. Stokes' Theorem.

2. Fall 2008 and Fall 2007. Mathematics with elements of medical statistics, Faculty of Pharmacy, course of Scientific Information on Drugs, two hours a week, sixty students.

Syllabus. Basic operations with sets and logical connectives. Foundations of algebra and analytical geometry. Functions of one variable. Differential calculus. Integral calculus. Statistics. Probability Calculus.

3. Fall 2008 and Fall 2007. Mathematics, Faculty of Pharmacy, course of Chemical and Pharmaceutical Technology, two hours a week, 100 students

Syllabus. Basic operations with sets and logical connectives. Linear spaces. Functions of one variable. Differential equations. Multivariable functions.

4. 2007/10-2008/05. Mathematics II, Faculty of Engineering, three hours a week, 160 students.

Syllabus. Basic operations with sets and logical connectives. Equations of lines and planes. Linear systems. Linear spaces. Linear applications. Determinants. Affine geometry. Complex numbers. Scalar products. Euclidean geometry. Eigenvalues and eigenvectors. Conics and quartics. Statistics and Probability Calculus.

5. Spring 2007. Mathematics II, Faculty of Engineering, five hours a week, 160 students.

#### **RESEARCH INTERESTS**

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Non-linear partial differential equations, Calculus of Variations, Functional Analysis.

## **PUBLICATIONS**

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1. with V. Georgiev "Orbital stability and uniqueness of the ground state for NLS equation in dimension one" on *Discrete and Continuous Dynamical Systems - A*, Vol. 37, N. 8, 4309-4328, August 2017
2. "On the connected components of the conjugacy class of projectors on  $\ell_p \oplus \ell_q$ , on *Indagationes Mathematicae*, Vol. 28, N. 2, 446-450, April 2017
3. "Orbitally stable standing-wave solutions to a coupled non-linear Klein-Gordon equation", on *Advanced Studies in Pure Mathematics*, Vol. 64, 387-398, April 2015
4. "Standing-wave solutions to a system of non-linear Klein-Gordon equations with a small energy/charge ratio" on *Advances in Nonlinear Analysis*, Vol. 3, n. 4, 237-245, November 2014
5. "On the orbital stability of standing-wave solutions to a coupled non-linear Klein-Gordon equation" on *Advanced Nonlinear Studies*, Vol. 12, n. 3, 639-658, December 2012
6. "On the spectral flow for paths of essentially hyperbolic bounded operators on Banach spaces" on *Topological Methods in Nonlinear Analysis*, Vol. 36, n. 2, 353-381, December 2010.

## **PAPERS IN PREPARATION**

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1. with V. Georgiev, "Uniqueness of standing-waves for a non-linear Schrödinger equation with three pure-power combinations in dimension one"
2. with V. Georgiev, "Existence of traveling-wave solutions to the half-wave equation and orbital stability of the ground state"
3. "Elliptic semi-linear systems in  $\mathbb{R}^n$ "
4. "Ordinary differential equations in Banach spaces and the spectral flow" (from Ph.D. dissertation).

## **PROJECTS**

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"Stability in non-linear evolutionary equations", Inha University (2015/04 - 2016/02)

## **CONTRIBUTED TALKS IN CONFERENCES**

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1. "Non-degeneracy and uniqueness of  $H^1$  symmetric minima for combined power-type non-linearities", at the *2017 JMM (Joint Mathematics Meetings)*, Hyatt Regency Atlanta and Marriott Atlanta Marquis, Atlanta, on January 7, 2017
2. "Uniqueness and non-degeneracy of standing-wave solutions to the non-linear Schrödinger equation", in the AMS Special Session on *Spectral Calculus and Quasilinear Partial Differential Equations* at the *2017 JMM*, Hyatt Regency Atlanta and Marriott Atlanta Marquis, Atlanta, on January 6, 2017
3. "On the connected components of the conjugacy class of projectors on  $\ell_p \oplus \ell_q$ ", at the *2016 KMS (Korean Mathematical Society) Fall Meeting*, Seoul National University, Seoul, on October 22, 2016
4. "Uniqueness and non-degeneracy of  $Q$ -balls in dimension one", at the *2016 KMS Spring Meeting*, Sungkyunkwan University, Suwon, on April 23, 2016

5. "Orbital stability of standing-wave solutions to the non-linear Schrödinger equation in dimension one", at the *2016 JMM*, Washington State Convention Center, Seattle, on January 7, 2016
6. "Minimal stable subsets of the ground state: the non-linear Schrödinger equation", at the *2015 KMS Spring Meeting*, Busan University, Busan, on April 25, 2015
7. "Finiteness, up to translations, of standing-wave solutions to a nonlinear Schroedinger equation" at the *2015 JMM*, Henry Gonzalez Convention Center, San Antonio, on January 13, 2015
8. "On the compactness of minimizing sequences of an energy functional arising from a system of Non-Linear Klein-Gordon Equations" at the *2014 KMS Spring Meeting*, Gangreung University, Gangreung, on April 25, 2014
9. "Traveling wave solutions to the half-wave equation", at the *2014 JMM*, Baltimore Convention Center, Baltimore, on January 17, 2014
10. "Traveling wave solutions to the half-wave equation" at the *2013 KMS Fall Meeting*, Seoul University, Seoul, on October 26, 2013
11. "Standing-waves with a small energy/charge ratio" at the *2013 KSIAM Spring Meeting*, Yonsei University, Seoul, on May 24, 2013
12. "Orbital Stability by means of symmetric rearrangement" at the *2013 Joint Mathematics Meetings*, San Diego Convention Center, San Diego, on January 10, 2013
13. "Standing-waves with a small energy/charge ratio" at the *2012 KMS Spring Meeting*, Sook-Myeong Women University, Seoul, on April 28, 2012
14. "Standing-waves solutions to a system of non-linear Klein-Gordon equations with a sub-critical growth non-linearity" at *2012 JMM*, Hynes Convention Center, Boston, on January 7, 2012
15. "On the spectral flow for Banach spaces" at the *2011 KMS Fall Meeting*, Gyeongbuk National University, Daegu, on October 22, 2011
16. "Orbitally stable coupled standing waves for a coupled non-linear Klein-Gordon equation" at the *4<sup>th</sup> MSJ-SI Nonlinear dynamics in Partial Differential Equations*, Kyushu University, Fukuoka, on September 14, 2011
17. "Lyapunov functions for standing-wave solutions to a coupled NLKG equation" at *The 3rd Kyushu University-Postech Joint Workshop*, Postech, Pohang, on June 17, 2011
18. "Orbitally stable coupled standing waves" at the *2011 KMS Fall Meeting*, Postech, on October 22, 2010
19. "A splitting property for two variables functions" at the *Young Researchers in Mathematics 2010*, Center for Mathematical Sciences, Cambridge, on March 26, 2010
20. "Non-linear elliptic systems and stability", at the *Joint Meeting KMS-AMS*, Ewha University, Seoul, on December 19, 2009
21. "On the spectral flow for Banach spaces" at *Beyond Part III*, Center for Mathematical Sciences, Cambridge, on April 16, 2009.

#### **OTHER ACTIVITIES**

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1. Reviews for Math Reviews: MR3260240, MR3101250, MR2825179

2. During the second year of my Ph.D., I worked as a tutor for three undergraduate students of the Scuola Normale, in Pisa. My duties consisted in helping them to solve exercises assigned from the professors of the courses

3. When I was a postdoctoral fellow at Postech, I submitted a problem (May 2011) for the Five Golden Button Problem. In this competition, a mathematics problem is released every month. These problems address all of the students of the institute

4. I participated to a public event for the dissemination of mathematics organized by the Korean Research Foundation at Gwacheon National Museum of Science, Seoul, 2011, April 17-19.

#### **OTHER SKILLS**

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As a Ph.D. student I took a course of C and C++ language. I have acquaintance with spreadsheets, as Excel (or Libreoffice), and mathematical software as SageMath (Mathematica), and basic knowledge of HTML.

#### **LANGUAGES**

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Italian: native

English: fluent

Korean: advanced (TOPIK II)

French: intermediate