



Sahar Zabad

● WORK EXPERIENCE

03/2022 – CURRENT Rome, Italy

MATHEMATICS INSTRUCTOR SAPIENZA UNIVERSITY OF ROME

Teaching Calculus (1,2 and 3) and Linear Algebra

2018 – 2022 Beirut, Lebanon

MATHEMATICS INSTRUCTOR LEBANESE INTERNATIONAL UNIVERSITY

Courses Taught:

Math100, College Algebra

Math161, Basics of Mathematics

Math210, Calculus II

Math260, Discrete mathematics

Math260L, Discrete Mathematics Lab

Math225, Linear algebra with applications

Math490, Modern Topics in Algebra

Math502, Abstract Algebra

2011 – 2013 Tyre, Lebanon

MATHEMATICS TEACHER SECONDARY SCHOOL AL-AMJAD LEBANESE HIGH SCHOOL

- taught Math to grades 10,11, and 12 with 90% passing percentage.
- came up with performance improvement plans for under-performing students in consultation with parents and administrative staff.

2009 – 2013

TUTORING MATH COURSES FOR UNIVERSITY AND HIGH SCHOOL STUDENTS.

● EDUCATION AND TRAINING

11/2013 – 02/2017 Rome, Italy

PH.D IN MATHEMATICS, XXIX CYCLE. La Sapienza University of Rome

Thesis Title : PDE and Dynamical Methods for Weakly Coupled Hamilton-Jacobi Systems.

Classification: Excellent

Thesis defense: February, 2017

Advisor : Prof. Antonio Siconolfi.

Committee: Piermarco Cannarsa, Albert Fathi, Andrea Davini, Maxime Zavidovique.

Address Piazzale Aldo Moro 5, 00185, Rome, Italy

2011 – 2013 Saida, Lebanon

MASTERS OF SCIENCE IN MATHEMATICS. Lebanese International University

Thesis Title (defended in July 2013) : Analysis of parabolic/Hamilton-Jacobi systems modelizing the dynamics of dislocation densities in a bounded channel.

Advisor : Prof. Hassan Ibrahim.

Evaluation : Distinction (letter grade: A), first of promotion.

2008 – 2011 Saida, Lebanon

BACHELOR IN MATHEMATICS Lebanese International University

Evaluation : Distinction (major GPA: 4/4), first of promotion.

2007 – 2008 Tyre, Lebanon

LEBANESE BACCALAUREATE IN LIFE SCIENCES Tyre High School for Girls

● **DIGITAL SKILLS**

Microsoft Office (Microsoft Word Microsoft Excel Microsoft Powerpoint Microsoft Access) | Latex | MathLab (Basic) | C++ Basic | Maple (basic)

● **ADDITIONAL INFORMATION**

RECOMMENDATIONS

- Antonio Siconolfi , Associate professor at Sapienza University, (siconolfi@mat.uniroma1.it) .
- Haissam Chehade,Mathematics Coordinator at Lebanese International University, Saida Campus,(haissam.chehade@liu.edu.lb)
- Mohamad Muhieddine, Mathematics Coordinator at Lebanese International University, Beirut Campus, (mohamad.muhieddine@liu.edu.lb)

HONOURS AND AWARDS

- Honours and awards** - 3-years Ph.D full scholarship from Sapienza University.
- First rank among all LIU branches in Mathematics (9 campuses).
-Masters scholarship from Lebanese International University.
-BS scholarship from Lebanese International University.

LANGUAGES:

Languages:

- Arabic : (Mother Language).
- English : (fluent).
- Italian : (Level A2).

RESEARCH INTERESTS

Research Interests

- Hamilton-Jacobi equation and viscosity solutions theory.
- Weak KAM theory.

CONFERENCES, WORKSHOPS AND SCHOOLS

Conferences, Workshops and Schools

- Conference on Beyond Hamilton-Jacobi, 23-30 April 2014, Avignon, France.
- Workshop on Analysis and Geometry in Control Theory and its Applications, 9-13 June 2014, Rome, Italy.
- Workshop on New Perspectives in Optimal Control and Games, 10-12 Novembre 2014, Rome, Italy.
- Conference on Numerical Methods for PDEs : Optimal Control, Games, and Image Processing, 4-5 Dicembre 2014, Rome, Italy.
- Lebanese International Conference on Mathematics and Applications "LICMA'15", 26-29 May 2015, Beirut, Lebanon.
- The Hamilton-Jacobi Equation: at the crossroads of PDE, dynamical systems and geometry, 22 - 27 June 2015, Cortona (Italy).
- Partial Differential Equations and Applied Mathematics Meeting, 29-30 March 2016, Beirut, Lebanon.
- INdAM Workshop on PDE models for multi-agent phenomena, 28 November-2 December 2016,Rome, Italy.
- Lebanese International Conference on Mathematics and Applications "LICMA'17", 16-19 May 2017, Beirut, Lebanon.

INVITED SEMINARS

Invited seminars

- "Scalar reduction techniques to Hamilton-Jacobi systems", American University of Beirut, March, 2016.
- "Analysis of Hamilton Jacobi systems/equations ", Lebanese International University, Beirut-Lebanon, March,2016.
- "PDE methods to weakly coupled Hamilton Jacobi systems", Sapienza Università di Roma, November, 2016.
- "Dynamical aspects of weakly coupled Hamilton Jacobi systems", Sapienza Università di Roma, February, 2017.
- "PDE aspects to weakly coupled systems of Hamilton Jacobi equations", LICMA'17, Lebanese University, May, 2017.

PUBLICATIONS

Publications and preprints

- A.Siconolfi, S.Zabad, Scalar reduction techniques to Hamilton-Jacobi systems, [*Nonlinear Differential Equations and Applications NoDEA*](#), 2018.
- H.Ibrahim, A.Siconolfi, S.Zabad, Cycle characterization of the Aubry set for weakly coupled Hamilton-Jacobi systems, *Communications in Contemporary Mathematics*,2017.
- S. Zabad and H. Ibrahim, Existence of Viscosity Solution for a Singular Hamilton-Jacobi Equation, *Arab Journal of Mathematical Sciences*, 2014.

SHORT VISITS

Short visits

- Lebanese University, Faculty of Sciences-1, March 21-March 30, 2016.
 - Lebanese University, Faculty of Sciences-1, July 8-July 20, 2015
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