

## ● WORK EXPERIENCE

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2018 – CURRENT – Beirut, Lebanon

**MATHEMATICS INSTRUCTOR – LEBANESE INTERNATIONAL UNIVERSITY**

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### 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**

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- 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.**

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## ● EDUCATION AND TRAINING

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11/2013 – 02/2017 – Piazzale Aldo Moro 5, Rome, Italy

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

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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.

2011 – 2013 – Saida, Lebanon

**MASTERS OF SCIENCE IN MATHEMATICS. – Lebanese International University**

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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**

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

## ● **DIGITAL SKILLS**

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

## ● **LANGUAGES:**

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### Languages:

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

## ● **HONOURS AND AWARDS**

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### Honours and awards

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- 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.

## ● **RESEARCH INTERESTS**

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### Research Interests

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

## ● **PUBLICATIONS**

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### Publications and preprints

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- 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.

## ● CONFERENCES, WORKSHOPS AND SCHOOLS

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### Conferences, Workshops and Schools

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- 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

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### Invited seminars

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- "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.

## ● SHORT VISITS

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### Short visits

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

## ● RECOMMENDATIONS

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- 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)