

## PERSONAL INFORMATION

## Federico Botta

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💬 Skype fede\_3x

Sex Male | Date of birth 15 November 1987 | Nationality Italian

## WORK EXPERIENCE

Jun 12 - Sep 12

**Assistant at a sport camp for children aged 6 to 12 (organized by the Italian Olympic Committee CONI)**

Assisting and caring for children aged 6 to 12, helping them to learn a great variety of sport activities; support during the whole day, including lunch.

## EDUCATION AND TRAINING

01 - 06

**High School Diploma (Final Grade 100/100)**

Collegio Gallio, IT-Como (Italy)

Mathematics, Biology, Chemistry, Literature (Italian, English), Latin, Philosophy, European Computer Driving Licence (ECDL)

06 - 09

**Bachelor degree in Physics (Final Grade 108/110)**

Università degli studi di Milano-Bicocca, Milano (Italy)

Classical Physics (Electromagnetism, Newtonian Mechanics, Thermodynamics), Mathematics (analysis, algebra, geometry, mathematical methods for physics), Computer programming (C/C++), Statistics, Computational Skills (Numerical Integration, Montecarlo methods, Logistic map), Modern Physics (Quantum mechanics, Atoms, Molecules, Structure of Matter, Methods for solving problems in quantum mechanics)

09 - 12

**Master Degree in Theoretical Physics (Final Grade 109/110)**

Università degli studi di Milano-Bicocca, Milano (Italy)

Mathematical methods (group theory, differential equations, distribution theory), Statistical Physics, Numerical Analysis (Montecarlo integration, Metropolis Algorithm, Molecular Dynamics) Quantum Field Theory, General Relativity, Fundamental Interactions

Mar 11 - Jun 11

Dualities in Field Theory and String theory (Phd course)

Sep 12 - Present

**DTC (Doctoral Training Center) programme: MSc+PHD in Complexity Science**

University of Warwick, Coventry United Kingdom

- Statistical Inference: probability distributions, linear regression, timeseries analysis, bayesian inference, MLE estimate, Fourier Analysis, Supervised and Unsupervised Learning
- Stochastic Processes: discrete and continuous time stochastic processes, Markov chains, stochastic calculus, random walks
- Dynamical Systems and Chaos: fixed point analysis, linear stability, bifurcation diagrams, chaos and Lorenz equations
- Network Theory, Self-Organisation, Emergence, Critical Phenomena, Percolation Theory
- Statistical Mechanics: Maximum Entropy, Fluctuations, Thermodynamics, Ordering and Phase Transitions, Scaling, Montecarlo and Metropolis Simulations
- Evolving graph structure, graphs with complex dynamics, agent-based modelling, reaction diffusion equations, Evolutionary Theory and Genetic Algorithms
- Introduction to theoretical Neuroscience
- Ergodic Theory

**PERSONAL SKILLS**

Mother tongue(s) Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
Toefl Certificate (June 2012) with score 111/120					
French	A2	B1	A2	A2	A1

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user  
[Common European Framework of Reference for Languages](#)

Communication skills

- Great team spirit developed in 18 years of playing ice-hockey (competitive level).
- Communication skills and ability to adapt to multicultural environments gained travelling around the world (mainly US & Canada to improve my English)
- Ability to interact with children aged 6-12 developed during sport camp

Organisational / managerial skills

Leadership and sense of organisation (currently member of a Leo Club, a service organization aiming at developing leadership qualities by participating in social activities, such as fund-raising to help hospitals, disabled people and others); in this organisation, I have been President, Vice-President, Secretary and Master of Ceremony of the Leo Club in my home town

Computer skills

- European Computer Driving Licence (ECDL) acquired at high school
- Good knowledge of Microsoft Office (Word, Excel, PowerPoint)
- Good knowledge of programming languages: C & C++
- Good knowledge of Wolfram Mathematica and Matlab
- Good knowledge of Latek document preparation system and of Beamer class for presentation
- Good knowledge of prezi.com presentation software

Other skills

Besides hockey, I have been skiing since I was 4 years old and I have played tennis for 5 years. As stated above, I am an active member of Leo Club International and I am very determined in helping other people. Musical skills: piano (5 years-course)  
 Good writing skills acquired throughout my studies and I currently write whenever I can. I have participated in an artistic contest "Science en Plein Art" with a project for a sculpture (2011). Great reader of a wide range of books.

Driving licence B

**ADDITIONAL INFORMATION**

In my master thesis I have studied non-relativistic vacua of string theory with particular kind of symmetries that are both interesting for string theory but also for condensed matter (critical phenomena and phase transitions).

Besides my studies, I am very interested in a wide range of topics and I have always tried to keep abreast of what interests me (neuroscience, biology, material sciences, philosophy, art)

Due to my studies, I have developed skills in modelling problems in quantitative mathematical terms