Sara Sottile

PhD student at University of Trento

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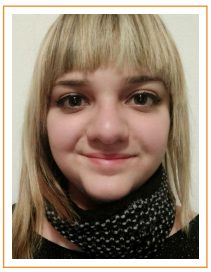

Education

Nov 2019 - Present, Trento (IT) — **University of Trento**, *PhD in Mathematics*.
Research fellowship in "mathematical models of epidemics"

Oct 2017 - Jul 2019, Turin (IT) — **University of Turin**, *MSc in Mathematics*, Modellistic Curriculum.
Thesis: "Epidemic Models: a Switch Control for Networks"
Supervisor: Prof. Lorenzo Fatibene; co-supervisor: Prof. Xinzhi Liu
Grade: 110/110 cum Laude

Jan - Apr 2019, Waterloo (CA) — **University of Waterloo**, *MSc in Applied Mathematics*, Exchange Program.
GPA: 86/100

Sep 2014 - Oct 2017, Bari (IT) — **University of Bari "A. Moro"**, *BSc in Mathematics*.
Thesis: "About Constitutive Equations in Thermodynamics"; supervisor: Prof. Arcangelo Labianca
Grade: 107/110

Sep 2009 - Jul 2014, Foggia (IT) — **High School "A. Volta"**, *Scientific High School Diploma*.
Grade: 100/100

Experience

Nov - Dec 2018 — **Administration activities**, *Research Area of School of Science of Nature*, Turin (IT).

Sep 29, 2017 — **Scientific Entertainer**, *European Researchers' Night 2017*, Bari (IT).

Sep 2012) — **Business Administration Intern at Regus**, *Internship*, London (UK).

Languages

Mother tongue: Italian

Other languages: English (B2), Spanish (A2)

IT Skills

Programming: MATLAB, Python, C/C++, Maple, XXPAUT, HTML

Operative Systems: Windows, Linux

Softwares: LaTex, Word, Excel, PowerPoint

Certificates

Jun 2018 — **English IELTS Academic**, Band Score 6.5 (CEFR Level B2).

Jun 2009 — **ECDL Certification**, European Computer Driving Licence.

Participations

Poster — **Sottile S.**, *"Time-varying epidemic transmission in heterogeneous networks"*, presented at: 11th Conference on Dynamical Systems Applied to Biology and Natural Sciences DSABNS, 4-7 February 2020; Trento, Italy.

Letter of Motivation

November 14, 2019

To whom it may concern.

With this letter I hereby wish to state my motivation to attend the "Thematic month on Mathematical Issues in Biology", organized at CIRM - Marseille. In particular, I would like to partecipate at the third week about "Mathematical Modeling and Statistical Analysis of Infectious Disease Outbreaks".

I have a master's degree in Mathematics and I started to work on the field of infectious disease during my Master's thesis at University of Waterloo, as part of an exchange program under the supervision of Prof. Xinzhi Liu. The main focus of this thesis, named "Epidemic Models: a Switch Control for Networks", was to refine the existing literature by formulating new epidemiological models with network contact patterns and time-varying transmission rates. More precisely, the assumption of the mass-mixing has been replaced with the use of heterogeneous networks, which specify who is connected to whom and in which way, and the seasonality of the diseases has been taken into account using parameters that depend on a switching signal. In this context, the most common approach is considering a time-varying transmission rate which, for simplicity, has been considered as a piece-wise constant function, subject to a switching rule.

Currently, I am a first year PhD student at the University of Trento, working on a project about mathematical models of epidemics under the supervision of Prof. Andrea Pugliese. A long term goal for my research will be related to my previous works and in particular the core idea is about the formulation and the analysis of scale-free network models in a periodic environment. It may be interesting to understand when the epidemic is persistent and studying oscillating behaviour of the solutions due to the switching.

Based on what I have mentioned above, it seems to be that this conference is related with my research topics and, as my PhD has just begun, I hope to meet more researchers as involved in this field as I am, at this event.
Let me thank you for your consideration of my application.

Sincerely,

Sara Sottile