

Sofía JIJÓN ALBÁN

Date of birth: September 13, 1987

Place of birth: Quito, Ecuador

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PhD Student at Pierre et Marie Curie University (UPMC).

Subject:

“Prevention in the context of efficient treatment: what will be the impact of pre-exposure prophylaxis on HIV epidemics?”.

Advisors: Dominique Costagliola, Virginie Supervie and Romulus Breban.

Host Research Unit: Pierre Louis Institute of Epidemiology and Public Health (IPLESP), Joint Research Unit on Health UMRS 1136, Inserm & UPMC, Paris, France.

Doctoral School: ED 393, Pierre Louis Doctoral School of Epidemiology and Public Health. Speciality: Biostatistics and/or Biomathematics.

Funding: Doctoral contract with UPMC, attributed after examination by the Interdisciplinary Doctoral Network coordinated by the School of High Studies in Public Health (EHESP).

Expected duration: September, 1st 2015 – August 31st, 2018.

Education

2015. Master’s degree in Applied Mathematics, speciality of Mathematical Modeling, program of Applications to Biological and Health Sciences (MBIO) at UPMC, Paris, France.

Master’s dissertation: *“Modeling the impact of pre-exposure prophylaxis in the incidence of HIV infection among men who have sex with men”.*

A mathematical model is developed in order to predict the pre-exposure prophylaxis impact on the HIV epidemic among men who have sex with men in Ile-de-France. The model takes into account mating heterogeneity in terms of the individuals’ sexual activity. Empirical data is used to configure the sets of parameters in order to reproduce the current epidemiological situation.

Host Research Unit: IPLESP.

Advisor: Virginie Supervie.

2013. Undergraduate degree in Mathematics at the Science Faculty of the Escuela Politécnica Nacional University (EPN), Quito, Ecuador.

Undergraduate’s dissertation: *“Reduction of a population spreading problem using Proper Orthogonal Decomposition (POD) method”.*

A proof of the existence and uniqueness of the weak solution for a reaction-diffusion parabolic equation in two dimensions —modelling a population growth model given by Fisher’s equation— is presented. The model is numerically solved applying the POD model reduction technique. The efficiency of the reduction is also discussed.

Host Research Unit: Sciences faculty, EPN.

Advisor: Pedro Merino.

Scientific Contribution

Publications

Sofía Jijón, Virginie Supervie, and Romulus Breban. Prevention of treatable infectious diseases: a game-theoretic approach. *Vaccine*, 37(40):5339–5345, 2017. doi: 10.1016/j.vaccine.2017.08.040.

Sofía Jijón and Pedro Merino. Reducción de un modelo de dispersión poblacional utilizando el método POD. *Revista Politécnica*, 32(3):1–10, 2013.

Seminars

- 2017.** (Speaker) *Prevención de enfermedades infecciosas en el contexto del tratamiento eficiente: un acercamiento por la teoría de juegos y una aplicación al VIH.* [Prevention of infectious diseases in the context of efficient treatment: a game-theoretic approach and an application to HIV epidemic]. Seminar organized by the MODEMAT Mathematical Modeling Centre, Quito, Ecuador. February 2017.
- 2017.** (Organizer) *La causalité en santé publique.* [The causality in public health]. Interdisciplinary seminar organized within the framework of the EHESP Interdisciplinary Doctoral Network, with the support of the Economy Center of University Paris 13 (CEPN). Paris, December 2017.
Website: <https://causalitesantepublique.wordpress.com>.

Posters Sessions

- S. Jijón, V. Supervie and R. Breban, *Prevention of treatable infectious diseases: a game-theoretic approach.* Presented at the Université des Jeunes Chercheurs organized by Sidaction, Carry-le-Rouet, France on October, 2017 and at the ED 393 seminar, Saint-Malo, France on October, 2017.
- S. Jijón, V. Supervie and R. Breban, *Prevention of infectious diseases in the context of efficient treatment: a game-theoretic approach.* Presented at the ED 393 seminar, Saint-Malo, France on October, 2016.
- S. Jijón, V. Supervie and R. Breban, *Prévention dans le contexte de traitement efficace : quel sera l'impact de la prophylaxie pré-exposition sur l'épidémie du VIH ?* Presented at the ED 393 seminar, Saint-Malo, France. October, 2015.

Attendance to Conferences and Seminars

HIV/AIDS Epidemiology and Research

- 2017.** Université des Jeunes Chercheurs, Sidaction, Carry-le-Rouet, France.
- 2017.** Volunteer at the International AIDS Society Conference on HIV Science (IAS 2017), Paris, France.
- 2017.** Residual risk of sexual transmission of HIV, a meeting of the AIDS Analysis Group, Paris.
- 2016.** Homosexuality and HIV: medical prevention and risk of infection, Sidaction, Paris.
- 2016.** Combined prevention: an individual asset for a collective challenge, TRT-5 Treatments and therapeutic research inter-associative group, Paris.
- 2015.** Epidemiological update on HIV and STIs, French Institute for Public Health Surveillance (InVS), Saint-Maurice, France.
- 2015.** Socio-sexual networks: research challenges and application perspectives, Sidaction, Paris.

Applied Mathematics and Mathematical Biology

- 2017.** Course on *Modeling infectious diseases*, Institut Pasteur, Paris.
- 2013.** CIMPA Summer School on Partial Differential Equations on Biology and Medicine, La Habana, Cuba.
- 2012.** First Southern-Summer School on Mathematical Biology, organized by the International Centre for Theoretical Physics (ICTP) and the South American Institute for Fundamental Research, São Paulo, Brasil.
- 2010.** XII Meeting on Mathematics and its Applications, Quito, Ecuador.

Software

Numerical Programming

Matlab	●●●○
Scilab	●●●○
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Scientific text editor

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Languages

Spanish. Mother language.

English. Sufficiency certificate required by the Ecuadorian higher education, 2008.

French. DELF B2 certificate, 2012.

Italian. Oral and written understanding.

Portuguese. Oral and written understanding.

Last updated: October 2017.