Chiara Poletto

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Computational Epidemiology Lab, ISI Foundation
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Personal

Date of birth: 11th September 1980
Nationality: Italian

Education

March 2009: PhD in Physics, Physics Department, University of Padova, Italy.
March 2005: Degree in Physics, University of Padova, marks:110/110 *cum laude*.

Professional Experience

September 2012 – present: visiting researcher at INSERM UMR S 707, Paris, France.
February 2009 – present: Post Doc at Computational Epidemiology Laboratory, ISI Foundation, Torino, Italy. Research project EpiFor funded by ERC – European Research Council, principal investigator Dr. Vittoria Colizza.
January 2006- March 2009: PhD in Physics, Physics Department, University of Padova. Thesis: *Solvent induced interactions in biopolymers: origin of secondary motifs*, supervisor Prof. Amos Maritan.
May 2005 - October 2005: Research appointment, Physics Department University of Padova.

Awards and Fellowships

September 2012: Post Doctoral Fellowship funded by the French Embassy in Italy and the Italian Ministry of Foreign Affairs for carrying out a 6-months research project at INSERM, Paris.
June 2010: Scholarship for attending the *Summer Institute in Statistics and Modeling of Infectious Diseases* 2010, funded by School of Public Health, University of Washington.
September 2009: Bursary for attending *European Conference of Complex Systems* 2009, funded by ASSYST project.
January 2006- March 2009: Doctoral Fellowship, Physics Department, University of Padova.
May 2005-October 2005: Fellowship associated to the project *Protein Physics*, University of Padova

Publications

1. C. Poletto, M. Tizzoni, V. Colizza
   Heterogeneous length of stay of hosts' movements and spatial epidemic spread
   Scientific Reports **2**:476 (2012).
2. P. Bajardi*, C. Poletto*, J. J. Ramasco, M. Tizzoni, V. Colizza, A. Vespignani,
   Human Mobility Networks, Travel Restrictions, and the Global Spread of 2009 H1N1 Pandemic.
   PLoS ONE **6**(1): e16591 (2011).
3. D. Balcan, V. Colizza, A.C. Singer, C. Chouaid, H. Hu, B. Gonçalves, P. Bajardi, C. Poletto,

J.J. Ramasco, N. Perra, M. Tizzoni, D. Paolotti, W. Van den Broeck, A. J. Valleron, A. Vespignani,
Modeling the critical care demand and antibiotics resources needed during the Fall 2009 wave of influenza A(H1N1) pandemic,
PLoS Currents: Influenza. 2009 Dic 4:RRN1133.

4. V. Colizza, A. Vespignani, N. Perra, C. Poletto, B. Gonçalves, H. Hu, D. Balcan, D. Paolotti, W. Van den Broeck, M. Tizzoni, P. Bajardi, J.J. Ramasco,
Estimate of Novel Influenza A/H1N1 cases in Mexico at the early stage of the pandemic with a spatially structured epidemic model,
PLoS Currents: Influenza. 2009 Nov 11:RRN1129.
5. P. Bajardi, C. Poletto, D. Balcan, H. Hu, B. Goncalves, J.J. Ramasco, D. Paolotti, N. Perra, M. Tizzoni, W. Van den Broeck, V. Colizza, A. Vespignani,
Modeling vaccination campaigns and the Fall/Winter 2009 activity of the new A(H1N1) influenza in the Northern Hemispher,
Emerging Health Threats Journal 2009, **2**:e11.
6. D. Balcan*, H. Hu*, B. Goncalves*, P. Bajardi*, C. Poletto*, J.J. Ramasco, D. Paolotti, N. Perra, M. Tizzoni, W. Van den Broeck, V. Colizza, A. Vespignani,
Seasonal transmission potential and activity peaks of the new influenza A(H1N1): a Monte Carlo likelihood analysis based on human mobility,
BMC Medicine, **7**:45, (2009).
7. C. Poletto, A Giacometti, A. Trovato, J. B. Banavar, A. Maritan,
Emergence of secondary motifs in tube like-polymer in a solvent
Phys. Rev. E, **77**, 061804 (2008).
8. J. B. Banavar, T. H. Hoang, J. H. Maddocks, A. Maritan, C. Poletto, A. Stasiak, A. Trovato,
Structural motifs of biomolecules,
Proc. Natl. Acad. Sci. USA, **104** (2007).

* These authors contributed equally

Scientific Committees

1. Member of the Organizing Committee of ECCS'12 Satellite Meeting *Data Driven Modeling of Contagious Processes,* Brussels, September 5, 2012.
2. Member of the Program Committee of the *European Conference of Complex Systems* 2011. Vienna, September 12-16, 2011.

Referee

PLoS ONE, Physical Review E, Journal of Computational Science, European Journal of Physics B, Europhysics Letters, Journal of Theoretical Biology, Mathematical Biosciences, Proceedings of the Royal Society B.

Invited Talks

3. *Dagstuhl Seminar "Data Mining, Networks and Dynamics",* Dagstuhl School, Germany, November 6 – 11, 2011.
4. *SIAM Conference on Application of Dynamics Systems*, Snowbird, Utah, USA, May 22-26, 2011.
5. Workshop *Recent approaches in modeling animal infectious diseases,* CIFIV "F. GRAMENZI", Teramo, Italy, September 28–30, 2010.

Contributed Talks

1. *ECCS2012*, Brussels, Belgium, September 3-7, 2012. Selected as plenary talk.
2. *NetSci2011*, Budapest, Hungary, June 6-10, 2011.
3. *American Physical Society March meeting,* Portland, USA, March 21–25, 2010.
4. *European Conference of Complex Systems,* Warwick University, Coventry, UK, September

13–17, 2009.
5. Workshop *Entropy in Biomolecular Systems,* Mediterranean Institute for Life Sciences, Split, Croatia, August 10–16, 2008.

Invited Seminars

1. IFISC, Universitat de les illes Balears. Palma de Mallorca, Spain. October 2, 2012.
2. Department of Physics, University of Padova, Padova, Italy April 2012.
3. INSERM UMR-S 707, Paris, France, November 21, 2011.
4. Rhônalpin des Systèmes Complexes, Lyon, France, July 2010.
5. Max Planck Institut für Metallforschung, Stuttgart, Germany, October 2008.
6. International School for Advanced Studies, Trieste, Italy, July 2008.
7. ISI Foundation, Turin, Italy, July 2008.

Posters Presentations

1. *EE² - Epiwork/Epifor 2nd International Workshop - Facing the Challenge of Infectious Diseases*, Pré-Saint-Didier, Italy, January 18-20, 2012.
2. *Epidemics 3*, Boston, US, November 29 – December 2, 2011.
3. *II Warsaw School of Statistical Physics,* Poland, June 15–22, 2007.
4. *National Workshop of Statistical Physics and Complex Systems*, Parma, Italy, June 29 – July 1, 2005.

Conferences and Schools attended

1. *Course Spatial Analysis in Epidemiology*, Torino University, Torino, Italy, June 20 – 22, 2011.
2. *Summer Institute in Statistics and Modeling in Infectious Diseases*, School of Public Health University of Washington, Seattle, USA, June 13 – July 1, 2010.
3. Intensive Course E*pidemiology in Action: Intermediate Analytic Methods,* Rollins School of Public Health of Emory University, Atlanta, USA, January 11–14, 2010.
4. Thematic Institute, *Lyapunov analysis, from theory to geophysical applications,* Institute of Complex Systems, Paris, France, October 26–28, 2009.
5. *International Workshop on Network Science,* Venezia, Italy, June 23 – July 3, 2009.
6. *Facing the Challenge of Infectious Diseases,* ISI Foundation, Torino, Italy, October 13–17, 2008
7. *19th Chris Engelbrecht Summer School in Theoretical Physics,* Cape Town, South Africa, January 23 – February 1, 2008.
8. *National Workshop of Statistical Physics and Complex Systems,* Parma, Italy, June 21–23, 2006.

Teaching Experience

1. Supervision of the Bachelor thesis "Modeling the interplay between social and epidemic dynamics" of Gino Almondo, University of Torino. 2011 – 2012 Academic Year.
2. Teaching Assistant of the course *Complexity in Social Systems*. Graduation Degree in Physics, University of Torino. 2010 – 2011 Academic Year.
3. Tutor of the course *Foundations of Physics I*. Graduation Degree in Material Science, University of Padova. 2007 – 2008 Academic Year.
4. Tutor of the course *Mathematical Analysis I*. Graduation Degree in Material Science, University of Padova. 2007 – 2008 Academic Year.
5. Tutor of the course *Foundations of Physics I*. Graduation Degree in Optics and Optometry, University of Padova. 2006 – 2007 Academic Year.
6. Tutor of the course *Mathematical Analysis I*. Graduation Degree in Optics and Optometry, University of Padova. 2006 – 2007 Academic Year.

Relevant Skills

Computer skills:

1. Linux/Unix, Mac OS X and Windows: all common applications (office package, browsers, …).
2. Familiar with C and C++ programming languages.
3. Good knowledge of Python
4. Good knowledge of Mathematica.
5. Basic knowledge of Esri's ArcGIS.

Language skills: Very good knowledge of English

Area of Research

My scientific background is in physics of complex systems. My research activity focuses on the application of tools of statistical physics to biological problems. Currently my research interest is on the characterization and modeling of the spatiotemporal spread of emerging infectious diseases. Through a theoretical and computational approach, I aim at characterizing the complex interplay between demography, individual mobility network and epidemic spreading.