MAURO FACCIN
Curriculum Vitæ

Ceped
Université de Paris - Campus St Germain des Prés
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75006 Paris, France
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https://maurofaccin.github.io

ACTUAL POSITION

2021 - today **CEPED and IRD**   Université de Paris, France
Interests/Research line
- Dynamical systems evolving on complex networks
- Mesoscopic structures and their influence on the dynamical system
- Applied data analysis for disease control
- Analysis of information dynamics in social networks

- **ARC2S at Unito**
visitor

PROFESSIONAL EXPERIENCE

2021 - today **Université de Paris, (CEPED and IRD)**   Paris, France
PostDoc
2015 - 2020 **PostDoc**   Louvain la Neuve, Belgium
Université Catholique de Louvain (ICTEAM)
2011 - 2015 **ISI Fundation**   Torino, Italy
PostDoc
2006 - 2011 **Bifi Institute**   Zaragoza, Spain
PhD

FELLOWSHIPS AND PROJECTS

2017 - today **Innoviris Iris-TB (D1.31402.007-F)**
2015 - 2017 MOVE-IN Louvain Fellowship (with support of Marie Curie Actions)

MEMBERSHIP

2018 - today **SICC - Italian Society for Chaos and Complexity**
2015 - today **Network Science Society**
Member
2014 - today **Complex Systems Society**
Member
2013 - today **Frontiers in Quantum Computing**
Review Editor

COMMITTEES

1 Dec 2020 **Complex Networks 2020**   Madrid, Spain
Program Committee
10 Dec 2019 **Complex Networks 2019**   Lisbon, Portugal
Program Committee
22 Feb 2019 **BeNet 2019**   Hasselt, Belgium
Program committee
11 Dec 2018 **Complex Networks 2018**   Cambridge, UK
Program Committee
29 Nov 2017 **Complex Networks 2017**   Lyon, France
Program Committee

15 Dec 2016	**BeNet 2016** Organizing committee	Louvain-la-Neuve, Belgium
30 Nov 2016	**Complex Networks 2016** Program committee	Milan, Italy
21 Sep 2016	**Coarse-graining of Complex Systems** Organizing committee	CCS2016, Amsterdam, Netherlands
2 Jun 2014	**Quantum Frontiers for Network Science** Organizing committee	NetSci 2014, Berkeley, California

REVIEWER

- Advances in Complex Systems
- Applied Network Science
- APS (Physical Review E)
- Journal of Complex Networks
- Journal of Statistical Mechanics
- Natural Computing
- PLOS ONE
- Science Advances
- Scientific Reports

TEACHING

2015-2020	**LINMA2111 Algorithms and Complexity** Université Catholique de Louvain	Assistant Professor
2005	**Physics and Math at primary school** NEST	Hetauda, Nepal
2004	**guide in Science Museum** Organizer: INFN	Padova, Italy

EDUCATION

2020	**24CFU**	Univestità telematica Pegaso
2011	**PhD in Physics** supervisor: Pierpaolo Bruscolini	University of Zaragoza
2007	**Master in Physics and Technology** supervisor: Pierpaolo Bruscolini	University of Zaragoza
2005	**MSc in Physics** supervisor: Enzo Orlandini	University of Padova

PUBLICATIONS

- **Data-driven identification of previously unrecognized communities with alarming levels of tuberculosis infection in the Democratic Republic of Congo.** medRXiv
 M. Faccin, O. Rusumba, A. Ushindi, M. Riziki, T. Habiragi, F. Boutachkourt, E. André
- **State aggregations in Markov chains and block models of networks**
 Phys. Rev. Lett., 127, 078301 (2021)
 M. Faccin, M.T. Schaub and j.-C. Delvenne
- **Complex Networks from Classical to Quantum** Communications Physics 2-53 (2019)
 J. Biamonte, M. Faccin, M. De Domenico
- **Outbreak of multidrug-resistant tuberculosis in South Africa undetected by WHO-endorsed commercial tests: an observational study**
 The Lancet Infectious Diseases 2018
 Makhado, Matabane, Faccin, Pinçon, Jouet, Boutachkourt, Goeminne, Gaudin, Maphalala, Beckert, Niemann, Delvenne, Delmée, Razwiedani, Nchabeleng, Supply, de Jong, André

- **Entrograms and coarse graining of dynamics on complex networks**
  Journal of Complex Networks
  M. Faccin, M.T. Schaub, J-C. Delvenne
- **Chiral Quantum Walks**   Phys. Rev. A 93, 042302
  D. L. Lu, J. D. Biamonte, J. Li, H. Li, T. H. Johnson, V. Bergholm, M. Faccin, Z. Zimborás, R. Laflamme, J. Baugh, and S. Lloyd
- **Mapping the topography of a protein energy landscape**
  J. Am. Chem. Soc., 2015, 137 (46), pp 14610–14625
  R. D. Hutton, J. Wilkinson, M. Faccin, E. M. Sivertsson, A. Pelizzola, A. R. Lowe, P. Bruscolini, L. S. Itzhaki
- **Community Detection in Quantum Complex Networks**
  Phys. Rev. X 4 (4 2014), p. 041012
  M. Faccin, P. Migdał, T. H. Johnson, V. Bergholm, and J. D. Biamonte
- **Degree Distribution in Quantum Walks on Complex Networks**
  Phys. Rev. X 3 (4 2013), p. 041007
  M. Faccin, T. Johnson, J. Biamonte, S. Kais, and P. Migdał
- **Quantum Transport Enhancement by Time-Reversal Symmetry Breaking**
  Sci. Rep. 3 (2013). Ed. by NPG, p. 2361
  Z. Zimboras, M. Faccin, Z. Kadar, J. Whitfield, B. Lanyon, and J. Biamonte
- **MS/MS Spectra Interpretation as a Statistical-Mechanics Problem**
  Analytical Chemistry 85.10 (2013), pp. 4884–4892
  M. Faccin and P. Bruscolini
- **Ground-state spin logic**   Europhysics Letters 99.5 (2012), p. 57004
  J. D. Whitfield, M. Faccin, and J. D. Biamonte
- **Analysis of the equilibrium and kinetics of the ankyrin repeat protein myotrophin**
  The Journal of Chemical Physics 134.7, 075102 (2011), p. 075102
  M. Faccin, P. Bruscolini, and A. Pelizzola

CONFERENCES (ORAL CONTRIBUTIONS)

2 Dec 2021	**Autoinformation state aggregation**	Madrid (Spain)
	Complex Networks 2021	
30 Nov 2021	**Vaccine-critical discourse on French-speaking Twitter and its outreach**	Madrid (Spain)
	Complex Networks 2021	
19 Oct 2021	**State aggregation for dynamical systems: An information-theoretic approach**	
		Math Dept, Oxford University, (UK – Online)
	Network Seminar 2021	
7-9 Dec 2020	**Using predictive models and risk assessment tools to find unreported TB cases**	
		Washingthon DC, USA (online)
	Global Digital Health Forum 2020	
20-24 Oct 2020	**Data-driven TB active-case finding in South Kivu (DRC)**	Paris, France (online)
	The Union 2020	
10-12 Dec 2019	**Auto-information in non-Markovian diffusion systems**	Lisbon, Portugal
	Complex Networks 2019	
22 Feb. 2019	**Variable aggregation for dynamical systems on networks**	Hasselt, Belgium
	Benet 2019	
23-28 Sept. 2018	**A dynamical approach to block structure analysis**	Thessaloniki, Greece
	CCS 2018	
11-15 Jun 2018	**Dynamical Markov Modules**	Paris, France
	Netsci 2018	
21-24 Mar 2017	**Community detection in networks with non-Markovian dynamics**	Dubrovnik, Croatia
	CompleNet 2017	
30 Nov-2 Dec 2016	**Behind Communities: Dynamics Define Modules**	Milan, Italy
	ComplexNetworks 2016	
19-22 Sep 2016	Beyond Communities: Dynamical Markov Modules	Amsterdam, Netherlands
	CCS 2016	
May 30-June 3 2016	Mesoscopic Structure And Diffusion Process Memory	Seoul, Korea
	NetSci 2016	
10-15 Jan 2015	Mesoscopic Structures and Diffusion Process Memory	Wrocław, Poland
	NetSci-X 2016	
2-6 Jun 2015	Structural controllability of EEG temporal causal networks	Zaragoza, Spain
	NetSci 2015	

22-26 Sep 2014	**Quantum Approaches to Community Detection** ECCS 2014	Lucca, Italy
12-14 Mar 2014	**Community detection on quantum systems** CompleNet 2014	Bologna, Italy
22-24 Jan 2014	**Community Detection on Quantum Systems** BIFI2014	Zaragoza, Spain
24-26 May 2013	**Degree distribution in quantum complex networks** IQC workshop on quantum computation and complex networks	Waterloo, Canada
6-8 Nov 2012	**Ground state spin logic** Tensor Network States and Algebraic Geometry Workshop	Torino, Italy
2-4 Feb 2011	**Equilibrium and kinetics of the ankyrin repeat protein Myotrophin through a simple statiscical mechanical model** V BIFI National Conference	Zaragoza, Spain
5-7 Feb 2009	**Bayesian Characterization of Protein Tandem Mass Spectra** IV BIFI National Conference	Zaragoza, Spain
8-9 May 2008	**Noise description in MSMS mass spectrometry, looking for a de novo sequencing algorithm** VI Jornadas Aragonesas de Estabilidad y Plegamiento de Proteínas	San Sebastian, Spain

CONFERENCES (POSTER CONTRIBUTIONS)

1 Dec 2021	Directed hyper-graphs and dynamical systems Complex Networks 2021	Madrid (Spain)
17-25 Sept 2020	State aggregation in non-Markovian systems by auto-information maximization Netsci 2020	Rome, Italy
17-25 Sept 2020	The variability of network structures inferred from time series data Netsci 2020	Rome, Italy
10-12 Dec 2019	The variability of network structures inferred from time series data Complex Networks 2019	Lisbon, Portugal
1-3 July 2019	**Variable aggregation on (broadcasting) networks** CCS/Italy 2019	Trento, Italy
23-25 Mar 2016	**Memory and Mesoscopic Structures in Diffusion Processes** Complenet 2016	Dijon, France
7-10 Jul 2010	**Folding Pathways Characterization for Ankyrin Repeat Protein Myotrophin** IV Spanish Portuguese Biophysical Congress	Zaragoza, Spain
2-6 Jun 2008	**Statistical characterization of fragment ions in MSMS mass spectrometry** XXI Sitges Conference on Statistical Mechanics: Statistical Mechanics of Molecular Biophysics	Sitges, Spain

COMPUTER SKILLS

Coding	**Python, C, C++, Matlab, Fortran**
Shell	**Bash, iPython/Jupyter**
Versioning	**GIT, Subversion, Mercurial**
Plotting	**Gnuplot, Matplotlib, PGFPlots(latex)**
Typesetting	**Latex, LibreOffice, MSOffice, Markdown**
Imaging	**Gimp (Raster), Inkscape (Vectorial), Rawtherapee (RAW)**
Web	**HTML5, CSS/SCSS, static site generators, Wordpress**

LANGUAGES

Italian	**Mother tongue**
English	**Fluent**
Spanish	**Fluent**

French **Fair**

Mauro Faccin