

# MAURO FACCIN

## Curriculum Vitæ

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4, Avenue Georges Lemaître  
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Belgium  
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<https://maurofaccin.github.io>

### ACTUAL POSITION

- **BigData Group and ICTEAM Institute at U.C. Louvain**  
Interests/Research line
  - Dynamical systems evolving on complex networks
  - Markovian and non-Markovian dynamics
  - Mesoscopic scale structures and their influence on the dynamical system
  - Applied data analysis for disease control
- **ARC2S at Unito**  
visitor

### PROFESSIONAL EXPERIENCE

2015 - today	<b>PostDoc</b> Université Catholique de Louvain (ICTEAM)	Louvain la Neuve, Belgium
2011 - 2015	<b>PostDoc</b> ISI Foundation	Torino, Italy
2006 - 2011	<b>PhD</b> Bifi Institute	Zaragoza, Spain

### FELLOWSHIPS AND PROJECTS

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

### MEMBERSHIP

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

### COMMITTEES

1 Dec 2020	<b>Complex Networks 2020</b> Program Committee	Madrid, Spain
10 Dec 2019	<b>Complex Networks 2019</b> Program Committee	Lisbon, Portugal
22 Feb 2019	<b>BeNet 2019</b> Program committee	Hasselt, Belgium
11 Dec 2018	<b>Complex Networks 2018</b> Program Committee	Cambridge, UK
29 Nov 2017	<b>Complex Networks 2017</b> Program Committee	Lyon, France
15 Dec 2016	<b>BeNet 2016</b> Organizing committee	Louvain-la-Neuve, Belgium

30 Nov 2016	<b>Complex Networks 2016</b> Program committee	Milan, Italy
21 Sep 2016	<b>Coarse-graining of Complex Systems</b> Organizing committee	CCS2016, Amsterdam, Netherlands
2 Jun 2014	<b>Quantum Frontiers for Network Science</b> 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	<b>LINMA2111 Algorithms and Complexity</b> Université Catholique de Louvain	Assistant Professor
2005	<b>Physics and Math at primary school</b> NEST	Hetauda, Nepal
2004	<b>guide in Science Museum</b> Organizer: INFN	Padova, Italy

## EDUCATION

2011	<b>PhD in Physics</b> supervisor: Pierpaolo Bruscolini	University of Zaragoza
2007	<b>Master in Physics and Technology</b> supervisor: Pierpaolo Bruscolini	University of Zaragoza
2005	<b>MSc in Physics</b> supervisor: Enzo Orlandini	University of Padova

## PUBLICATIONS

- **State aggregations in Markov chains and block models of networks** ArXiv  
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)

20-24 Oct 2020	<b>Data-driven TB active-case finding in South Kivu (DRC)</b> The Union 2020	Paris, France (online)
10-12 Dec 2019	<b>Auto-information in non-Markovian diffusion systems</b> Complex Networks 2019	Lisbon, Portugal
22 Feb. 2019	<b>Variable aggregation for dynamical systems on networks</b> Benet 2019	Hasselt, Belgium
23-28 Sept. 2018	<b>A dynamical approach to block structure analysis</b> CCS 2018	Thessaloniki, Greece
11-15 Jun 2018	<b>Dynamical Markov Modules</b> Netsci 2018	Paris, France
21-24 Mar 2017	<b>Community detection in networks with non-Markovian dynamics</b> CompleNet 2017	Dubrovnik, Croatia
30 Nov-2 Dec 2016	<b>Behind Communities: Dynamics Define Modules</b> ComplexNetworks 2016	Milan, Italy
19-22 Sep 2016	<b>Beyond Communities: Dynamical Markov Modules</b> CCS 2016	Amsterdam, Netherlands
May 30-June 3 2016	<b>Mesoscopic Structure And Diffusion Process Memory</b> NetSci 2016	Seoul, Korea
10-15 Jan 2015	<b>Mesoscopic Structures and Diffusion Process Memory</b> NetSci-X 2016	Wrocław, Poland
2-6 Jun 2015	<b>Structural controllability of EEG temporal causal networks</b> NetSci 2015	Zaragoza, Spain
22-26 Sep 2014	<b>Quantum Approaches to Community Detection</b> ECCS 2014	Lucca, Italy
12-14 Mar 2014	<b>Community detection on quantum systems</b> CompleNet 2014	Bologna, Italy
22-24 Jan 2014	<b>Community Detection on Quantum Systems</b> BIFI2014	Zaragoza, Spain
24-26 May 2013	<b>Degree distribution in quantum complex networks</b> IQC workshop on quantum computation and complex networks	Waterloo, Canada
6-8 Nov 2012	<b>Ground state spin logic</b> Tensor Network States and Algebraic Geometry Workshop	Torino, Italy
2-4 Feb 2011	<b>Equilibrium and kinetics of the ankyrin repeat protein Myotrophin through a simple statistical mechanical model</b> V BIFI National Conference	Zaragoza, Spain
5-7 Feb 2009	<b>Bayesian Characterization of Protein Tandem Mass Spectra</b> IV BIFI National Conference	Zaragoza, Spain

8-9 May 2008 **Noise description in MSMS mass spectrometry, looking for a de novo sequencing algorithm** San Sebastian, Spain  
 VI Jornadas Aragonesas de Estabilidad y Plegamiento de Proteínas

## CONFERENCES (POSTER CONTRIBUTIONS)

17-25 Sept 2020 **State aggregation in non-Markovian systems by auto-information maximization** Rome, Italy  
 Netsci 2020

17-25 Sept 2020 **The variability of network structures inferred from time series data** Rome, Italy  
 Netsci 2020

10-12 Dec 2019 **The variability of network structures inferred from time series data** Lisbon, Portugal  
 Complex Networks 2019

1-3 July 2019 **Variable aggregation on (broadcasting) networks** Trento, Italy  
 CCS/Italy 2019

23-25 Mar 2016 **Memory and Mesoscopic Structures in Diffusion Processes** Dijon, France  
 CompleNet 2016

7-10 Jul 2010 **Folding Pathways Characterization for Ankyrin Repeat Protein Myotrophin** Zaragoza, Spain  
 IV Spanish Portuguese Biophysical Congress

2-6 Jun 2008 **Statistical characterization of fragment ions in MSMS mass spectrometry** Sitges, Spain  
 XXI Sitges Conference on Statistical Mechanics: Statistical Mechanics of Molecular Biophysics

## 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