# MAURO FACCIN

Curriculum Vitæ

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https://maurofaccin.github.io

## ACTUAL POSITION

- **BigData Group and ICTEAM Institute at U.C. Louvain**
  Interests/Research line
  - Dynamics on and of complex networks
  - Mutual influence of topology and kinetics
  - Markovian and non-Markovian dynamics
  - Community and block detection

## PROFESSIONAL EXPERIENCE

| | | |
|---|---|---|
| 2015 - today | **PostDoc**<br>Université Catholique de Louvain (ICTEAM) | Louvain la Neuve, Belgium |
| 2011 - 2015 | **PostDoc**<br>ISI Fundation | Torino, Italy |
| 2006 - 2011 | **PhD**<br>Bifi Institute | Zaragoza, Spain |

## FELLOWSHIPS

| | |
|---|---|
| 2015 | MOVE-IN Louvain Fellowship (with support of Marie Curie Actions) |

## MEMBERSHIP

| | | |
|---|---|---|
| 2015 - today | **Network Science Society**<br>Member | |
| 2014 - today | **Complex Systems Society**<br>Member | |
| 2013 - today | **Frontiers in Quantum Computing**<br>Review Editor | |

## COMMITTEES

| | | |
|---|---|---|
| 2 Jun 2014 | **Quantum Frontiers for Network Science**<br>Organizing committee | NetSci 2014, Berkeley, California |
| 21 Sep 2016 | **Coarse-graining of Complex Systems**<br>Organizing committee | CCS2016, Amsterdam, Netherlands |
| 30 Nov 2016 | **Complex Networks 2016**<br>Program committee | Milan, Italy |
| 15 Dec 2016 | **BeNet 2016**<br>Organizing committee | Louvain-la-Neuve, Belgium |
| 29 Nov 2017 | **Complex Networks 2017**<br>Program Committee | Lyon, France |
| 11 Dec 2018 | **Complex Networks 2018**<br>Program Committee | Cambridge, UK |

## Reviewer

- Applied Network Science
- Journal of Complex Networks
- Journal of Statistical Mechanics
- Natural Computing
- Physical Review E
- Scientific Reports

## Teaching

| | | |
|---|---|---|
| 2015-2017 | **LINMA2111 Algorithms and Complexity**<br>Université Catholique de Louvain | Assistant Professor |
| 2005 | **Physics and Math at primary school**<br>NEST | Hetauda, Nepal |
| 2004 | **guide in Science Museum**<br>Organizer: INFN | Padova, Italy |

## Education

| | | |
|---|---|---|
| 2011 | PhD in Physics<br>supervisor: Pierpaolo Bruscolini | University of Zaragoza |
| 2007 | **Master in Physics and Technology**<br>supervisor: Pierpaolo Bruscolini | University of Zaragoza |
| 2005 | **MSc in Physics**<br>supervisor: Enzo Orlandini | University of Padova |

## Publications

- **Entrograms and coarse graining of dynamics on complex networks**

  Journal of Complex Networks

  M. Faccin, M.T. Schaub, J-C. Delvenne
- **Complex Networks: from Classical to Quantum – preprint**     arXiv:1702.08459

  J. Biamonte, M. Faccin, M. De Domenico
- **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)

| | | |
|---|---|---|
| 11-15 Jun 2018 | **Dynamical Markov Modules** <br> Netsci 2018 | Paris, France |
| 21-24 Mar 2017 | **Community detection in networks with non-Markovian dynamics** <br> CompleNet 2017 | Dubrovnik, Croatia |
| 30 Nov-2 Dec 2016 | **Behind Communities: Dynamics Define Modules** <br> ComplexNetworks 2016 | Milan, Italy |
| 19-22 Sep 2016 | **Beyond Communities: Dynamical Markov Modules** <br> CCS 2016 | Amsterdam, Netherlands |
| May 30-June 3 2016 | **Mesoscopic Structure And Diffusion Process Memory** <br> NetSci 2016 | Seoul, Korea |
| 10-15 Jan 2015 | **Mesoscopic Structures and Diffusion Process Memory** <br> NetSci-X 2016 | Wrocław, Poland |
| 2-6 Jun 2015 | **Structural controllability of EEG temporal causal networks** <br> NetSci 2015 | Zaragoza, Spain |
| 22-26 Sep 2014 | **Quantum Approaches to Community Detection** <br> ECCS 2014 | Lucca, Italy |
| 12-14 Mar 2014 | **Community detection on quantum systems** <br> CompleNet 2014 | Bologna, Italy |
| 22-24 Jan 2014 | **Community Detection on Quantum Systems** <br> BIFI2014 | Zaragoza, Spain |
| 24-26 May 2013 | **Degree distribution in quantum complex networks** <br> IQC workshop on quantum computation and complex networks | Waterloo, Canada |
| 6-8 Nov 2012 | **Ground state spin logic** <br> 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** <br> V BIFI National Conference | Zaragoza, Spain |
| 5-7 Feb 2009 | **Bayesian Characterization of Protein Tandem Mass Spectra** <br> IV BIFI National Conference | Zaragoza, Spain |
| 8-9 May 2008 | **Noise description in MSMS mass spectrometry, looking for a de novo sequencing algorithm** <br> VI Jornadas Aragonesas de Estabilidad y Plegamiento de Proteínas | San Sebastian, Spain |

## Conferences (Poster Contributions)

| | | |
|---|---|---|
| 23-25 Mar 2016 | **Memory and Mesoscopic Structures in Diffusion Processes** <br> Complenet 2016 | Dijon, France |
| 7-10 Jul 2010 | **Folding Pathways Characterization for Ankyrin Repeat Protein Myotrophin** <br> IV Spanish Portuguese Biophysical Congress | Zaragoza, Spain |
| 2-6 Jun 2008 | **Statistical characterization of fragment ions in MSMS mass spectrometry** <br> XXI Sitges Conference on Statistical Mechanics: Statistical Mechanics of Molecular Biophysics | Sitges, Spain |

## Computer skills

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|---|---|
| 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