

Alexandre Bovet

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Born September 28, 1984
Single, Swiss

Education

- Nov. 2010 – **PhD in Physics**
Feb. 2015 **École Polytechnique Fédérale de Lausanne (EPFL), Switzerland**
Title: Suprathreshold ion transport in turbulent plasmas
Directors : Prof. A. Fasoli & Prof. I. Furno
Oral Defense: February 13, 2015.
- 2007 - 2009 **Master of Science (MSc) in Physics (EPFL)**
Master's Thesis at the UKAEA, Culham, Oxford, UK
- 2004 - 2007 **Bachelor of Science (BSc) in Physics (EPFL)**

Employment

- Since July 2022 **Assistant Professor of Quantitative Network Science (University of Zurich, CH)**
Faculty of Science, Department of Mathematics
- June 2020 – June 2022 **Postdoctoral Research Associate (University of Oxford, UK)**
Mathematical Institute, Mathematical Data Science Group with Prof. Grindrod
Mathematics of Social Systems, Online Harms and Applications to Public Policy
- Nov 2017 – June 2020 **Postdoctoral Research Fellow (Université catholique de Louvain, Belgium)**
Mathematical Engineering department (UCLouvain) with Prof. Delvenne & Prof. Lambiotte
 - Nov 2018 – June 2020: Swiss National Science Foundation (SNSF) Advanced Postdoctoral Fellow. UCLouvain and University of Oxford, UK.
 - Nov 2017 – Nov 2018: Research Fellow. UCLouvain and University of Namur, BE, Belgium.Theoretical and empirical investigation of temporal social networks.
- March 2016 – Sep. 2017 **SNSF Early Postdoctoral Fellow (City College of New York, USA)**
Levich Institute and Department of Physics with Prof. Makse
Investigating the dynamics of information spreading in social networks.
- July 2015 – March 2016 **Postdoctoral Researcher (ETH, Zurich, Switzerland)**
Institute of Integrative Biology with Prof. Bonhoeffer
Investigating the social organization of a population of wild mice with Prof. König (University of Zurich).
- Nov. 2010 – Feb. 2015 **Doctoral Researcher (EPFL, Lausanne, Switzerland)**
Centre de Recherches en Physique des Plasmas

Empirical, numerical and theoretical investigation of particle diffusion in turbulent magnetized plasmas.

Sep. 2009 – **Physics Teacher in a high school (Douala, Cameroon)**

June 2010 For my civil service, I taught physics in a high school of a deprived neighbourhood of the biggest city of Cameroon.

Consulting experience

Dec. 2019 **European Service Network S.A.**
Consulting on disinformation reporting

Awards and Fellowships

ICWSM Best Program Committee Member Award 2021

Belgian Fund for Scientific Research (FNRS): Senior Postdoctoral Researcher 2020

Swiss National Science Foundation (SNSF): Advanced Postdoc Mobility Fellowships 2018

Swiss National Science Foundation (SNSF): Early Postdoc Mobility Fellowships 2016

Finalist EPFL Doctorate Award 2016 and Special distinction by the jury

Best Poster award at the European Physical Society Conference 2011

Publications

Google scholar: <https://scholar.google.com/citations?user=rbHfk1EAAAAJ>

Teaching Activities and Supervision

University Courses

- **Graph Theory** for bachelor students at the Université Catholique de Louvain, Belgium, Autumn 2018 (together with Prof. Jungers, substitute for Prof. Delvenne during his sabbatical).
- Course module on **Twitter Social Network and Sentiment Analysis** at The Graduate Center of the City University of New York, USA, Spring 2017 and Spring 2021.
- Guest lecture in **Plasma Physics II** at EPFL, Switzerland, for master students, 2014.

Tutorials

- **Influence of fake news in Twitter during the 2016 US presidential election**, ICTEAM Tutorial Seminar, Louvain-la-Neuve, Belgium, 2019/3/25
- **Random walks in networks and community detections**, Winter Workshop on Complex Systems, Zakopane, Poland, 2019/2/6
- **Uncovering memory patterns in temporal networks with higher-order Markov models**, Complexity72h workshop, IMT School for Advanced Studies Lucca, Italy, 2018/5/9
- **Non-diffusive transport, fractional diffusion equations, and Lévy stable distributions**, Swiss Plasma Center PhD Seminar EPFL, Lausanne, Switzerland, 2014/4/2

Supervision

- Alice Nanyanzi (with R. Lambiotte), **master student**, African Institute for Mathematical

Sciences and University of Oxford, 2022

- Leonardo Gutiérrez-Gómez (with J-C. Delvenne), **doctoral student**, UCLouvain, Belgium, 2019-2020
- **Data science master student group project in the private sector**, University of Namur, Spring 2018
- Zhou Zhenkun (with H.A. Makse), **doctoral student**, CCNY, USA, 2019
- George Furbish (with H.A. Makse), **doctoral student (2nd exam expert)**, CCNY, USA, 2016-2018
- Müller Martin (with, S. Bonhoeffer & J. Liechti), **master thesis**, ETHZ, Switzerland, 2015
- Matteo Gamarino (with P. Ricci), **master thesis**, EPFL, Switzerland, 2013

Teaching Assistant/Tutor/Assessor

- **Assessor for Networks mini-projects**, University of Oxford, Mathematics Master students, 2021
- **Tutor for Multivariable Calculus**, University of Oxford, Sommerville College, 1st year students, 2021
- **Plasma Physics II** at EPFL, Switzerland, for master students, 2014
- **General Physics I, II and III** at EPFL, Switzerland, for first and second year students. I was the first assistant for Prof. Fasoli managing a team of 21 TAs, 2010-2014
- Teaching assistant for **physics practical work** for physicians during my Bachelor and Master at EPFL, Switzerland, 2007-2009

Talks

Upcoming

Invited *Computational Social Science team seminars, Centre Marc Bloch, Berlin, Germany.*

Past

Structure and evolution of the UK far-right Telegram network, The 10th International Conference on Complex Networks and their Applications, 2021/11/30, Madrid, Spain

Flow stability for dynamic community detection, Conference on Complex Systems 2021, 2021/10/26, online.

Flow stability for dynamic community detection, ComNet@Networks2021, 2021/7/1, online.

Twitter influencers and increased polarization during two U.S. presidential elections, Political Communication Networks@Networks2021, 2021/6/24, online.

Invited Oxford Mathematical Institute Networks Seminar, 2021/5/25, Oxford, UK (online)

Plenary Flow stability for dynamic community detection, CompleNet 2021, 2021/4/24-26, (online).

Invited Investigating disinformation in social media with network science, North Meets South Oxford Mathematical Institute colloquia, 2021/3/12, Oxford, UK (online)

Invited Investigating misinformation and extremism in online social networks, Oxford-Warwick-Edinburgh Network Science Workshop, 2021/2/15, Warwick, UK (online)

Multi-scale Anomaly Detection on Attributed Networks, The 9th International Conference on Complex Networks and their Applications, 2020/12/1-3, Madrid, Spain (online)

Flow stability for community detection in non-stationary temporal networks, NetSci2020, 2020/9/25, Rome, Italy (online)

Multi-scale Anomaly Detection on Attributed Networks, Machine Learning in Network Science Satellite @ Netsci2020, 2020/9/18, Rome, Italy (online)

Bringing Meaning into the Model: Opinion Dynamics as Associative Diffusion, *International Conference on Computational Social Science (IC2S2)* Online conference, July 2020, with Anna Keuchenius, Mikołaj Biesaga, Irene Malvestio, Chico Camargo, Lea Hildebrandt and Sabin Roman.

Community detection in non-stationary temporal networks, *The 8th International Conference on Complex Networks and their Applications*, 2019/12/10-12, Lisbon, Portugal

Understanding and fighting disinformation: complex systems and machine learning approaches, *Workshop on Machine Learning, AI, Data Science and Complex Systems*, 2019/11/20-22, Vrije Universiteit Brussel, Belgium

Invited Investigating the dynamics of complex networks: bitcoin transactions network and temporal community detection, *EPFL Chair of Statistical Field Theory Seminar*, 2019/10/7, Lausanne, Switzerland

Invited Diffusion in networks: fake news and anomaly detection, *EPFL Information and Networks Dynamics Laboratory*, 2019/10/4, Lausanne, Switzerland

Invited Community detection in non-stationary temporal networks: Application to a wild mice population, *University of Zurich, Animal Behavior Research Group*, 2019/9/9, Zurich, Switzerland

Invited Diffusion in complex systems: fake news and random walks, *EPFL Data Science Lab*, 2019/9/6, Lausanne, Switzerland

Invited Diffusion in complex systems: fake news and random walks, *EPFL Swiss Plasma Center Seminar*, 2019/9/2, Lausanne, Switzerland

Dynamics and influence of misinformation and traditional fact-based news in Twitter, *International Conference on Computational Social Science (IC2S2)*, 2019/7/18-20, Amsterdam, Netherlands

Invited Community detection in non-stationary temporal networks, *Higher-Order Models in Network Science Satellite @ NetSci2019*, 2019/5/27-31, Burlington, Vermont, USA

Spreading and influence of misinformation and traditional fact-based news in Twitter, *NetSci2019*, 2019/5/27-31, Burlington, Vermont, USA

Invited Influence of fake news in Twitter during the 2016 US presidential election, *URPP Social Networks*, 2019/5/13, University of Zurich, Switzerland

Invited Uncovering the dynamics and influence of fake and traditional news in Twitter, *3rd workshop on the Understanding and Controlling of Complex Systems*, 2019/3/18, KU Leuven, Belgium

Invited Spreading and influence of misinformation and traditional fact-based news in Twitter, *SopraSteria Cyber Security Agency*, 2019/3/12, Brussels, Belgium

Invited Diffusion in complex systems: random walks, fast ions and fake news, *Department of Mathematical Engineering Seminars*, 2019/3/5, UCLouvain, Belgium

Spreading and influence of misinformation and traditional fact-based news in Twitter, *The 7th*

International Conference on Complex Networks and Their Applications, 2018/11/12, Cambridge, United Kingdom.

Spreading and influence of misinformation and traditional fact-based news in Twitter, *Conference on Complex Systems 2018*, 2018/9/25, Thessaloniki, Greece.

Spreading and influence of misinformation and traditional fact-based news in Twitter, *9th International Conference on Complex Systems*, 2018/7/24, Cambridge MA, USA

Invited Finding Network Influencers and Understanding Opinion Dynamics in Twitter, *Network Science CTA Technical Meeting*, 2017/5/1, Newark DE, USA

Uncovering the Dynamics of Twitter Opinion Leaders in the US 2016 elections, *Conference on Complex Systems*, 2016/9/16, Amsterdam, The Netherlands

Non-diffusive suprathermal ion transport associated with blobs in TORPEX plasmas, *56th Annual Meeting of the APS Division of Plasma Physics*, 2014/10/27, New Orleans LA, USA

Invited Experimental and numerical studies of suprathermal ion transport, *40th European Physical Society Conference on Plasma Physics*, 2013/7/1, Helsinki, Finland

Investigation of fast ion transport in TORPEX, *Annual Meeting of the Swiss and Austrian Physical Societies*, 2011/6/15, Lausanne, Switzerland

Workshop and Schools Attended

Winter Workshop on Complex Systems 2020, Gruyères, Switzerland, Jan. 27-31, 2020

Winter Workshop on Complex Systems 2019, Zakopane, Poland, Feb. 4-8, 2019

Complexity72h, IMT School, Lucca, Italy, May 7-11, 2018

NetSci2015, International School and Conference on Network Science, Zaragoza, Spain, June 1-5, 2015

Young scientist in the team “Superdiffusive Transport in Space Plasmas and its Influence on Energetic Particle Acceleration and Propagation”, at the **International Space Science Institute** in Bern, Switzerland. February 10–14, 2014, & November 2-6, 2015.

École de Physique des Houches, Dynamics and turbulent transport in plasmas and conducting fluids, France, Feb. 28-March 11, 2011

Academic Service

Workshop Organizer:

- Challenging Inequalities Retreat 2021 & 2022 (Swiss Young Academy project)
- Winter Workshop on Complex Systems 2021, Online
- Winter Workshop on Complex Systems 2020, Gruyère, Switzerland (wwcs2020.github.io)

co-organizers: Burcu Tepekule (ETHZ, CH) & Matteo Cinelli (ISC-CNR, IT)

Academic Editor: PLOS ONE, Recommender for the *Peer Community in Network Science*

Program Committee Member: International Conference on Complex Networks and their Applications (since 2019), International AAAI Conference on Web and Social Media (since 2020), Belgian Network Research Meeting 2019.

Session Chair: Complex Networks and their Applications 2021, O6B: Human Behavior & O8A: Community Structure. Complex Networks and their Applications 2020, O5A: Dynamics on/of Networks (2020).

Reviewer:

- **Journals:** Nature, Nat. Commun., Sci. Adv., PLOS ONE, Sci. Rep, Eur. Phys. J. B, IEEE Trans. Automat. Contr., ICWSM, Appl. Net. Sci., Recent Pat. Comput. Sci., J. Stat. Mech: Theory Exp., Chaos, Palestine J. Math.
- **Grants:** Volkswagen Foundation.
(<https://publons.com/researcher/1570580/alexandre-bovet/peer-review/>)

Dissertation committees

- Mattie Landman, PhD confirmation of status assessor, Oxford University, UK, 2022
- George Furbish, PhD 2nd exam expert, CCNY, USA, 2018
- Matteo Gamarino, master thesis jury, EPFL, Switzerland, 2013

Other Service Roles:

- Member of the [UZH Blockchain Center](#) (since 2022)
- Elected council member of the [Complex Systems Society](#) (2019-2022).
- Member of the steering committee of the [Winter Workshop on Complex Systems](#) (2020-2025).
- Elected member of the [Swiss Young Academy](#) (2020-2025).

Outreach

[Presentation at the Benelux parliament about disinformation](#), 15/10/2021

Interview by the Belgian Senate for the preparation of report about the collaboration between the Belgian communities and the Federal authority in the fight against fake news. 09/11/2020

Investigating fake news and their influence in social media. AI4Belgium & Data Science Community Meetup, 28/11/2019, Brussels, Belgium.

Diffusion et influence des fake news sur Twitter, Friweek: manipulation de l'information, Chambre de commerce et d'industrie du canton de Fribourg (CCIF), 15/05/2019, Fribourg, Switzerland

Understanding the influence of fake news on Twitter, DataBeers Brussels, 03/10/2018, Brussels, Belgium

Guided tours of the EPFL Centre de Recherches en Physique des Plasmas for school students (<http://journeesdesclasses.epfl.ch/>), high school students, University Students, Fusion Day (<https://actu.epfl.ch/news/epfl-fusion-day/>), ASTRAC (ASTRONomes-Amateurs-de la Côte), 2010-2015, Switzerland

Press

News papers

Interview for Moustique Magazine (Belgium), 10/2020

Le Soir (*Ce chercheur de l'UCLouvain a capturé les fake news sur Twitter*, 2/02/2019)

La Libre (*Une étude belge a chiffré le nombre de "fake news" diffusées sur Twitter lors de l'élection présidentielle américaine*, 2/02/2019)

Radio interviews

Radio Télévision Belge Francophone (*Au Bout du Jour: Alexandre Bovet, Twitter et fakes News*, 12/02/2019)

Radio Télévision Suisse (*Forum: La circulation des fake news: interview d'Alexandre Bovet*, 20/02/2019)

News websites

Moustique (*Avec le Covid-19, les théories du complot ont tout pour prospérer*, 05/05/2020)

PBS news/The Conversation (*The language gives it away: How an algorithm can help us detect fake news*, 14/08/2019)

ScienceToday (*Qui est derrière les (fake) news sur Twitter ?* 05/02/2019)

The Belgian Scientist (*2016 US Presidential Campaign Tarnished By 25% Conservative-Driven "Fake News"*, 08/02/2019)

7sur7 (*L'UCL a compté le nombre de fake news sur Twitter lors de la campagne présidentielle américaine*, 14/02/2019)

DH.be (*Une étude belge a chiffré le nombre de "fake news" diffusées sur Twitter lors de l'élection présidentielle américaine*, 02/02/2019)

Nieuws (*Ruim 7,5 miljoen tweets met "fake news" tijdens Amerikaanse presidentsverkiezingen*, 02/02/2019)

VTMnieuws (*Waalse onderzoeker ontdekt 7.5 miljoen tweets met fake news*, 02/02/2019)

HLN (*7,5 miljoen tweets naar fake news tijdens kiescampagne VS*, 04/02/2019)