

Bilal Kostet

University of California, Berkeley
Department of Demography
Berkeley, CA 94720-2120
✉ bikostet at berkeley dot edu



Academic appointments

- 2026-2027 **Belgian American Educational Foundation–Hoover Foundation Postdoctoral Fellow, Department of Demography, UC Berkeley**

Working on combining mechanistic models, inspired by physical processes, with statistical data analysis methods to understand how heterogeneous spatial structures (such as population density, contact patterns, seasonality, climate change) modify the propagation of an epidemic.

- 2017 – 2026 **Teaching assistant, Department of Physics, Université libre de Bruxelles**
PhD funding involving teaching: exercise sessions and labs, ~260h per year of teaching.
Coordinator of a course with around 700 students; general course coordination, writing, grading and organizing exams, managing a team of 10 teaching assistants.
Courses given: General first and second year physics, electromagnetism, statistics and probability, thermodynamics.

Education

- 2025 **Specialized MSc in data science, big data, Université libre de Bruxelles**
- 2024 **PhD in Physics, Université libre de Bruxelles**
Title: Dynamics of localized structures in Kerr resonators, under the supervision of Prof. Mustapha Tlidi.
- 2023 **Research stay, Universidad de Chile, Santiago, Chile**
6-month stay with Prof. Marcel G. Clerc which led to 2 publications.
- 2017 **MSc in Physics with a research focus, Université libre de Bruxelles, magna cum laude**
Master thesis: Study of the DNA replication kinetics, under the supervision of Prof. Pierre Gaspard.
- 2015 **BSc in Physics, Université libre de Bruxelles, cum laude**

Publications

Publications in international peer-reviewed journals

- 2025 Bataille-Gonzalez, M., Clerc, M., Bahloul, L., **Kostet, B.**, Soupart, Y., Tlidi, M. *Dissipative soliton combs with spectral filtering*. Physical Review A **112**, 023504. <https://doi.org/10.1103/mlqm-6g6h>
- 2023 Tlidi, M., Bataille-Gonzalez, M., Clerc, M., Bahloul, L., Coulibaly, S., **Kostet, B.**, Castillo-Pinto, C. & Panajotov, K. *Isolas of localized structures and Raman-Kerr frequency combs in micro-structured resonators*. Chaos, Solitons & Fractals **174** pp. 113808. <https://doi.org/10.1016/j.chaos.2023.113808>
- 2021 **Kostet, B.**, Soupart, Y., Panajotov, K. & Tlidi, M. *Coexistence of dark vector soliton Kerr combs in normal dispersion resonators*. Physical Review A **104**, 053530. <https://doi.org/10.1103/PhysRevA.104.053530>

- 2021 **Kostet, B.**, Gopalakrishnan, S., Averlant, E., Soupart, Y., Panajotov, K. & Tlidi, M. *Vectorial dark dissipative solitons in Kerr resonators*. OSA Continuum **4**, 1564-1570. <https://doi.org/10.1364/OSAC.418653>
- 2019 Hariz, A., Bahloul, L., Cherbi, L., Panajotov, K., Clerc, M., Ferré, M., **Kostet, B.**, Averlant, E. & Tlidi, M. *Swift-Hohenberg equation with third-order dispersion for optical fiber resonators*. Physical Review A **100**, 023816. <https://doi.org/10.1103/PhysRevA.100.023816>
- 2018 **Kostet, B.**, Tlidi, M., Tabbert, F., Frohoff-Hülsmann, T., Gurevich, S., Averlant, E., Rojas, R., Sonnino, G. & Panajotov, K. *Stationary localized structures and the effect of the delayed feedback in the Brusselator model*. Philosophical Transactions Of The Royal Society A: Mathematical, Physical And Engineering Sciences **376**, 20170385. <https://doi.org/10.1098/rsta.2017.0385>

Grants and fellowship

- 2026–2027 Belgian-American Educational Foundation – Hoover Foundation Fellowship.
- 2023–2026 Bilateral cooperation project between Belgium and Chile with 6 yearly stays of 2 weeks to 6 months, Wallonia–Brussels International.
- 2021 Emile Defay Fund grant, Université Libre de Bruxelles.
- 2021 Jaumotte-Demoulin Fund grant for equipment and research projects, Université Libre de Bruxelles.
- 2019 Research credit funding from the Belgian Fund for Scientific Research (F.R.S.–FNRS).

Service

Reviewer for the *Journal of Selected Topics in Quantum Electronic* and the *International Journal of Optics*.

- 2023 Member of the scientific and organizing committee for the *Solvay Workshop on "Dissipative solitons and optical frequency comb generation"* held in Université libre de Bruxelles (ULB), Brussels, Belgium.
- 2022 Organizer of the *2nd ALLURE LAI (International Associated Laboratories) meeting on "Self-organization of light and extreme events"* between ULB and Lille 1 University held in ULB, Brussels, Belgium.
- 2021 Organizer for the *Solvay Workshop on "Dissipative solitons, turbulence and extreme events in nonlinear photonics"* held in ULB, Brussels, Belgium.

Presentations

Oral presentations at international conferences

- 10/07–09/2024 (Invited) "Vectorial dark dissipative solitons in Kerr resonators" *XX International Workshop on Instabilities and Nonequilibrium Structures*, Institut Non Linéaire de Nice, Nice, France.
- 06/16–18/2021 "Polarization-induced double-collapsed snaking in Kerr resonators", *Online Minisymposium for Young Researchers 2022* associated with the workshop *Nonlinear Waves and Turbulence in Photonics 2022*, Weierstrass Institute, Berlin, Germany.
- 12/2–6/2019 "Swift–Hohenberg equation for photonic crystal resonators", *XVII International Workshop on Instabilities and Nonequilibrium Structures*, Pontifical Catholic University of Valparaíso, Chile.
- 06/18–20/2018 "Spontaneous motion of cavity solitons induced by delayed feedback in semiconductor cavity". *Nonlinear Dynamics in Semiconductor Lasers*, Weierstrass Institute, Berlin, Germany.

Poster presentations at international conferences

- 12/4–8/2023 "Vectorial dark dissipative solitons in Kerr resonators", *XIX International Workshop on Instabilities and Nonequilibrium Structures*, Pontifical Catholic University of Valparaíso, Chile.
- 10/10–13/2023 "Vectorial dark dissipative solitons in Kerr resonators", *MIRO (Millenium Institute for Research in Optics) Workshop*, Pontifical Catholic University of Chile, Santiago, Chile.
- 07/03–05/2023 "Isolas of localized structures in micro-structured resonators", *Nonlinear Dynamics in Semiconductor Lasers*, Weierstrass Institute, Berlin, Germany.
- 03/29–31/2022 "Solitons dissipatifs vectoriels noirs dans les résonateurs Kerr (Vectorial dark dissipative solitons in Kerr resonators)", *La 25e rencontre du non linéaire (The 25th nonlinear meeting)*, Université Paris Cité, Paris, France.
- 06/16–18/2021 "Vectorial dark dissipative solitons in Kerr resonators", *Nonlinear Dynamics in Semiconductor Lasers*, Weierstrass Institute, Berlin, Germany.
- 06/23–27/2019 "Coexistence of cavity solitons with different polarization states and different power peaks in all-fiber resonators" & "Generalized Swift–Hohenberg equation for optical fiber resonators", *Conference on Lasers and Electro-Optics/Europe – CLEO*, International Congress Centre, Munich, Germany.

Languages

French	Native.	Dutch	A1-A2 (Elementary proficiency).
English	C1-C2 (Full professional proficiency).	Spanish	A1-A2 (Elementary proficiency).

Computer skills

Languages:	LaTeX	
	Python	SciPy, NumPy, Pandas, Matplotlib, Dask, Keras, scikit-learn
	R	Functional data analysis, machine learning packages.
	FORTRAN	
	C++	
Softwares:	Mathematica	
	MATLAB	
	Microsoft Excel	
	Adobe Photoshop/Illustrator	
	Blender	

Service

- 2019 – current **Volunteer**, *CatRescue ASBL*
Weekly maintenance at a cat shelter. Responsibilities include animal care and assistance with regular veterinary treatments.
- 2024 – 2026 **Vice-chairman of the board of directors**, *Université libre de Bruxelles*
Responsible for coordinating the representatives of each body that constitutes the university community, as well as replacing the chairman in his absence.
- 2017 – 2026 **Non-faculty researchers representative**, *Université libre de Bruxelles*
Representative for non-faculty researchers for the Department of Physics, for the Faculty of Science, and for the whole university. Sat on the board of directors and 19 other subcommittees organizing different aspects of university work and life.

2021 – 2026 **Université des Enfants (Children University), ULB Engagée**

Design and conducting a hands-on workshop to introduce children aged 6–12 to thermodynamics, called "What is heat and cold?" in Brussels and Charleroi.

2013 – 2017 **Infosciences department, Université libre de Bruxelles**

Science workshops for the general public and high schools.

2013 – 2018 **Jeunesses scientifiques de Belgique (Scientific youth of Belgium), Échec à l'échec (Failure to failure)**

Academic support to high school students in physics and mathematics.

2012 – 2017 **Student representative, Université libre de Bruxelles**

Class representative. Student representative at the faculty council. Communication manager for the Science Student Council.

February 24, 2026.