Curriculum Vitae
Vasiliki Bitsouni

Personal Information

Date of birth:	March 13, 1988
Nationality:	Greek
Address:	Department of Mathematics, University of Patras Panepistimiopolis, Rio Patras, GR-26504
E-mails:	vbitsouni@math.uoa.gr vbitsouni@gmail.com
Personal website:	http://users.uoa.gr/~vbitsouni
ORCID:	0000-0002-0684-0583
Google Scholar:	https://scholar.google.gr/citations?user=EpeD3LEAAAAJ
Researchgate:	https://www.researchgate.net/profile/Vasiliki_Bitsouni

Research Interests

Mathematical Biology, Partial & Ordinary Differential Equations, Applied Mathematics.

Employment

09/2023-: Assistant Professor, Department of Mathematics, University of Patras, Greece.

10/2020-09/2023: Visiting Assistant Professor, Section of Mathematical Analysis, Department of Mathematics, National and Kapodistrian University of Athens (NKUA), Greece.

07/2020-06/2021: Postdoctoral Research Associate, Applied Mathematics Laboratory, School of Science and Technology, Hellenic Open University (HOU), Greece.

03/2019-02/2020: Postdoctoral Research Associate, Cardiff University, U.K., and SciCo Cyprus.
Project: Calcium signalling in cancer (*SciShops* H2020 project).

10/2017-02/2019: Postdoctoral Research Fellow, The Roslin Institute, University of Edinburgh, U.K.
Project: Epidemiological consequences of different vaccination strategies in Porcine Reproductive and Respiratory Syndrome (PRRS) (*SAPHIR* H2020 project).

Education

09/2014 - 08/2017: PhD in Applied Mathematics (with Distinction),
Department of Mathematics, University of Dundee, UK.
Thesis Title: "Nonlinear Nonlocal Parabolic-Hyperbolic Coupled Systems for Cancer Cell Movement and Aggregation"
https://discovery.dundee.ac.uk/en/studentTheses/nonlinear-nonlocal-parabolic-hyperbolic-coupled-systems-for-cance
Supervisors: Prof. Raluca Eftimie & Prof. Mark A. J. Chaplain

10/2011 - 06/2014: M.Sc. in Applied Mathematics (with Distinction),
Department of Mathematics, National and Kapodistrian University of Athens (NKUA), Greece.
Thesis Title: "Rearrangement of Functions and Faber-Krahn Inequalities"

https://pergamos.lib.uoa.gr/uoa/dl/object/1315686
Supervisor: Prof. Gerassimos Barbatis

10/2005 - 09/2010: B.Sc. in Mathematics,
Department of Mathematics, National and Kapodistrian University of Athens (NKUA), Greece.

Book

Bitsouni, V., Gialelis, N. & Stratis, I. G. (2023) An Introduction to Mathematical Biology (in Greek), Kallipos, Open Academic Editions. DOI: https://dx.doi.org/10.57713/kallipos-225

Publications

1. **Bitsouni, V.**, Chaplain, M. A. J. & Eftimie, R. (2017). Mathematical modelling of cancer invasion: the multiple roles of TGF-β pathways on tumour proliferation and cell adhesion. *Math. Modell. Meth. Appl. Sci. (M3AS)*, 27(10), 1929-1962. DOI: 10.1142/S021820251750035X
2. **Bitsouni, V.**, Trucu, D., Chaplain, M. A. J. & Eftimie, R. (2018). Aggregation and travelling wave dynamics in a two-population model of cancer cells. *IMA Math. Med. Biol.* 35 (4), 541-577. DOI: 10.1093/imammb/dqx019
3. **Bitsouni, V.** & Eftimie, R. (2018). Non-local parabolic and hyperbolic models for cell polarisation in heterogeneous cancer cell populations. *Bull. Math. Biol.*, 80 (10), 2600-2632. DOI: 10.1007/s11538-018-0477-4
4. **Bitsouni, V.**, Lycett, S., Opriessnig, T. & Doeschl-Wilson, A. (2019). Predicting vaccine effectiveness in livestock populations: a theoretical framework applied to PRRS virus infections in pigs. *PLoS ONE*, 14(8): e0220738. DOI: 10.1371/journal.pone.0220738
5. Chase-Topping, M., Xie, J., Pooley, C., Trus, I., Bonckaert, C., Rediger, K., Bailey, R., Brown, H., **Bitsouni, V.**, Barrio, B., Gueguen, S., Nauwynck, H. & Doeschl-Wilson, A. (2020). New Insights about vaccine effectiveness: Results from a PRRSV transmission experiment in pigs using an attenuated PRRS strain. *Vaccine*, 38 (14), 3050-3061. DOI: 10.1016/j.vaccine.2020.02.015
6. Kaouri, K., **Bitsouni, V.**, Buttenschön, A. & Thul, R. (2020). Adhesion-driven patterns in a calcium-dependent model of cancer cell movement. *Submitted. arXiv:* 2003.00612
7. Avraam, D., **Bitsouni, V.**, Glynatsi, N., Kaouri, K., Micheletti, A., Oliveira, R. & Zachariou, M. (2020). Breaking barriers for women in science. *arXiv:* 2003.01642
8. **Bitsouni, V.**, Gialelis, N. & Stratis, I. G. (2021). A model for the outbreak of COVID-19: Vaccine effectiveness in a case study of Italy. Operator Theory and Harmonic Analysis - Part II: Probability-Analytical Models, Methods and Applications, A. Karapetyants, I. V. Pavlov and A. N. Shiryaev (eds.), Springer Proceedings in Mathematics & Statistics, Vol. 358, Springer, 91-107. DOI: 10.1007/978-3-030-76828-7
9. **Bitsouni, V.**, Gialelis, N. & Stratis, I. G. (2022). A quantitative approach on the solvability of evolution problems in open sets of certain geometries. *J. Math. Anal. Appl.*, 506 (2), 125663. DOI: 10.1016/j.jmaa.2021.125663
10. **Bitsouni, V.** & Tsilidis, V. (2022). Mathematical modeling of tumor-immune system interactions: the effect of rituximab on breast cancer immune response. *J. Theor. Biol.*, 539, 111001. DOI: 10.1016/j.jtbi.2021.111001
11. **Bitsouni, V.,** Gialelis, N. & Stratis, I. G. (2022). Rigorous Analysis of the Quasi-Steady-State Assumption in Enzyme Kinetics. *Mathematics*, 10(7), 1086. DOI: 10.3390/math10071086
12. **Bitsouni, V.** & Gialelis, N. (2022). A note on the multivariate generalization of a basic simple inequality.

Math. Ineq. & Appl., 25 (3), 913-923. DOI: 10.7153/mia-2022-25-58

13. **Bitsouni, V.**, Gialelis, N. & Tsilidis, V. (2022). A mathematical study of the role of tBregs in breast cancer. *Bull. Math. Biol.*, 84(10):112. DOI: 10.1007/s11538-022-01054-y

14. **Bitsouni, V.**, Gialelis, N. & Marinescu, D. Ş. (2022). An inequality for completely monotone functions. *Submitted. arXiv:* 2204.06602

15. **Bitsouni, V.**, Gialelis, N. & Marinescu, D. Ş. (2022). Generalized fraction rules for monotonicity with higher antiderivatives and derivatives. *Submitted. arXiv:* 2207.03195

Scholarships, Grants & Awards

1. Landahl travel award from SMB Landahl-Busenberg program 2019 to attend SMB 2019, Montreal, Canada.
2. Financial support from *SAPHIR* Young Scientist Programme to attend SMB 2018, Sydney, Australia.
3. Landahl travel award from SMB Landahl-Busenberg program 2017 to attend SMB 2017, SLC, USA.
4. BAMC 2017 travel grant, University of Surrey, UK.
5. LMS 2017 travel grant to attend the 2017 Women in Mathematics Day at Birkbeck College, University of London, UK.
6. Engineering and Physical Sciences Research Council (EPSRC) Doctoral Training Grant (EP/L504932/1) for doctoral studies at University of Dundee, UK, 2014-2017.
7. School of Science and Engineering Scholarship (University of Dundee) to cover PhD stipend for international students, UK, 2014-2017.
8. Scholarship from Rotary Club of Athens, Greece, 2006-2010.

Teaching

1. Visiting Assistant Professor, Department of Mathematics, NKUA, Athens, 2020-2023:
   411. Partial Differential Equations I, Fall semester 2020-2021, 2021-2022 & 2022-2023.
   615. Geometric Analysis, Spring semester, 2020-2021.
   658. Methods of Applied Mathematics, Spring semester 2020-2021, 2021-2022 & 2022-2023.
   715. Mathematical Biology, Spring semester, 2021-2022 & 2022-2023.
2. Tutor, Applied Mathematics Laboratory, School of Science and Technology, Hellenic Open University:
   Cram school on Mathematics I (FYE10), Spring semester 2020-2021.
3. Teaching Assistant, University of Edinburgh, UK:
   "Mathematical modelling" module of MSc in Animal Bioscience programme, 1-2/02/2018.
4. Teaching Assistant, University of Dundee, UK:
   MA11001: Mathematics 1A, Semester 1, 2016-17.
   EG31001: Engineering Maths, Semester 1, 2016-17.
   MA22001: Mathematics 2B, Semester 2, 2015-16.
   MA12002: Pure Mathematics, Semester 1, 2015-16.
   EG31001: Engineering Maths, Semester 1, 2015-16.
5. Copy-editor for lecture notes on Differential Equations modules of the BSc in Mathematics at the National and Kapodistrian University of Athens, 2013-2014.
6. Tutor for high school and undergraduate students in Athens, 2006-2014.

Lecture Notes

1. Bitsouni, V., Partial Differential Equations I, Athens, 2020. Eclass.
2. Gialelis, N. & Bitsouni, V., Geometric Analysis, Athens, 2021. Eclass.
3. Vovos, M. & Bitsouni, V., Methods of Applied Mathematics, Athens, 2021. Eclass.
4. Bitsouni, V., Mathematical Biology, Athens, 2022. Eclass.

Supervision of M.Sc. Theses

1. F. Stoila (2022, co-supervision with I. G. Stratis), *"Dynamics of Structured Equations of Infectious Diseases"*, NKUA, MSc in Applied Mathematics.
2. V. Tsilidis *"Mathematical Modelling of Immune Response in Breast Cancer"*, Hellenic Open University, MSc in Mathematics.

Conferences

A. Invited Talks & Posters

1. Partial Differential Equations in Applied Mathematics: a hybrid conference in honour of Ioannis Stratis (talk), "Kostis Palamas" building, July 4-5, 2023.
2. *Applied Analysis and PDEs Seminar* (talk), Department of Mathematics, National and Kapodistrian University of Athens (NKUA), Athens, Greece, October 6, 2022.
3. Second Congress of Greek Mathematicians (*SCGM-2022*) (talk), NTUA, Athens, Greece, July 4-8, 2022.
4. Summer School on Multi-scale Modeling for Pattern Formation in Biological Systems-Online Conference (talk), Institut Mittag-Leffler, Sweden, July 19-23, 2021.
5. Mathematical Biology on the Mediterranean Coast-Online Conference (*MBMC2021*) (talk), Paris, France, May 25-27, 2021.
6. First Congress of Greek Mathematicians (*FCGM-2018*) (talk), NKUA, Athens, Greece, June 25-30, 2018.
7. 2017 Society for Mathematical Biology Annual meeting *(SMB 2017)* (talk), University of Utah, Salt Lake City, UT, USA, July 17-20, 2017.
8. *STEM for BRITAIN 2017* event (poster competition), Mathematical Sciences Session, House of Commons, London, UK, March 13, 2017.

B. Contributed Talks & Posters

1. Mathematical Biology on the Mediterranean Conference, 3rd edition, International Workshop (talk), Foundation for Research and Technology (FORTH), Crete, Greece, September 5-6, 2022.
2. Mathematical Biology on the Mediterranean Conference, International Workshop (talk), University of the Aegean, Samos, Greece, September 8-14, 2019.
3. 2019 Society for Mathematical Biology Annual meeting (talk), Université de Montréal, Montreal, Quebec, Canada, July 22-26, 2019.
4. 9th Mathematics in Life Sciences (MiLS) meeting (talk), University of Oxford, Oxford, U.K. April 2, 2019.
5. 2018 Annual Meeting of the Society for Mathematical Biology & the Japanese Society for Mathematical Biology (SMB 2018) (talk), University of Sydney, Sydney, NSW, Australia, July 8-12, 2018.
6. Graduate Women in Scotland (talk), Discovery Point, Dundee, UK, April 29, 2017.
7. Applied Mathematics Colloquium 2017 (talk), University of Surrey, UK, April 10-12, 2017.
8. LMS Women in Mathematics Day (poster), Birkbeck, University of London, UK, March 30, 2017.
9. 4th Scottish Partial Differential Equations Colloquium (poster), University of Dundee, UK, June 9-10, 2016.

10. Mathematical Biology Themed Group Seminar (talk), University of Dundee, UK, November 24, 2015.
11. Mathematical Society Postgraduate Meeting for Students 2015 (talk), The Burn, Edzell, UK, June 1-3, 2015.

Conference Organising

1. Partial Differential Equations in Applied Mathematics: a hybrid conference in honour of Ioannis Stratis, "Kostis Palamas" building, July 4-5, 2023 (member of the organising committee).
2. 2021 e-Summer School in Mathematical Biology, Applied Mathematics Laboratory of the HOU, September 9-12, 2021 (member of the organising committee).

Computer Skills

- Certificate in Computer Science, Department of Mathematics, NKUA.
- MS Office, Matlab, C, R, Maple, Mathematica, Latex, Gnuplot.
- Power BI, SQL, KNIME (Data Analyst Online Courses from NKUA), Python (Data Science with Python Online Courses from NKUA), HTML 5 and JavaScript.

Languages

English (fluent), Greek (native).

Summer School/Experimental Training

1. Mathematical Biology on the Mediterranean Conference, International Summer School, University of the Aegean, Samos, Greece, September 1-7, 2019.
2. Multimodal Monitoring of Cell Migration, Complex Systems at the Forschungszentrum Juelich, FZJ (Institute of Complex Systems 7: Biomechanics) and the Institute of Molecular and Cellular Anatomy of RWTH Aachen University, Germany, July 27-31, 2015.
3. Post-grad ASI in Mathematical and Physical Sciences: Modelling, Numerical Analysis and Applications, Isaac Newton Institute, Cambridge, UK, July 13-24, 2015.

Public engagement/Outreach

- Article in *Financial Postman* (Greek press): *https://www.ot.gr/2022/02/18/academia/i-mathimatiki-viologia-kai-i-meleti-tou-karkinou*.
- Team member of SciCo Cyprus (co-organiser of SciShops (H2020) *webinars*, *Pitch Challenge*, *2nd Summer School*).
- Co-creator of SAPHIR wiki-page: *https://www.wiki.ed.ac.uk/display/saphir*.
- Representative of Mathematics PhD students at the University of Dundee, 2015-2016.
- Volunteer in science festivals:
  1. *Women in Science Festival 2015*, University of Dundee, UK, March 28, 2015.
  2. *Life and Light in Numbers: Dundee Science Festival 2014*, Dundee Science Centre, UK, November 16, 2014.