CIRRICULUM VITAE: PROF. DR. RER. NAT. VITALY BELIK

PERSONAL

Name:	Vitaly Belik
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PROFESSIONAL CAREER

2016 – present	*Professor* (W1) for System Modeling in Veterinary Epidemiology, Freie Universität Berlin
2014 – 2016	*Research Associate*, Institute for Theoretical Physics, Technische Universität Berlin
2014 – 2015	*Visiting Scientist*, Helmholtz Centre for Infection Research, Braunschweig
2010 – 2012	*Postdoctoral Affiliate*, Massachusetts Institute of Technology, Department of Civil and Environmental Engineering, Cambridge, MA, USA
2010 – 2013	*Project Leader*, Department of Nonlinear Dynamics, Max Planck Institute for Dynamics and Self-Organization, Göttingen
2004 – 2010	*Researcher*, Department of Nonlinear Dynamics, Max Planck Institute for Dynamics and Self-Organization, Göttingen
03. – 04.2008	*Consultant Intern* (financial consulting), d-fine GmbH, Frankfurt am Main

ACADEMIC EDUCATION AND DEGREES

2005 – 2008	Dr. rer. nat. (PhD) in Theoretical Physics, Georg-August-Universität, Göttingen
2001 – 2002	Undergraduate studies in Physics, Humboldt-Universität zu Berlin
1998 – 2004	Diploma in Physics and Biochemical Physics (M.Sc.), Lomonosov Moscow State University

FELLOWSHIPS AND AWARDS

2017	Best poster award (Conference of Microbiological Society, Kraków, Poland, together with A Jarynowski)
2008 – 2010	Postdoctoral Fellowship of the Max Planck Society
2010	Best poster award (NetSci 2010, Cambridge, MA, USA)
2004 – 2007	Scholarship of the Max Planck Society for Doctoral Studies
2004	Graduate Excellence Award, Lomonosov Moscow State University
2001 – 2002	Scholarship of the Humboldt University Berlin sponsored by Siemens AG

ACTIVITIES IN THE SCIENTIFIC COMMUNITY AND ADMINISTRATIVE EXPERIENCES

2016 – present	Co-Organizer of the Berlin Colloquium *Statistical Methods in Empiric Research*
2019 – present	Representative of FU Berlin in *Data Literacy Education Network* of Stifterverband
2019 – present	Review Editor on the Editorial Board of *Frontiers in Veterinary Science*
2019	COST Action Workshop organizer (Networks in One Health Epidemiology)

GRANT ACQUISITION

212 000 €, VolkswagenStiftung, Computational Sciences Funding Initiative, Project: *Investigation of complex human travel patterns as a basis for epidemic modeling*
5 930 € DAAD PROCOPE travel grant, Project: *Strategien zur Kontrolle von Krankheitsausbreitung in zeitabhängigen Netzwerken* (together with P. Hövel)
SBF 910, Second funding period, Project B10: *Control of networks with time-varying topologies and applications to epidemiology*, co-writing of the proposal (together with P. Hövel)
15 000 CHF *Inference of missing links in Swiss animal trading network* (together with S. Dürr and H. Lenz)
10 000 Euro, Part of *BiozAR (together S. Vincze and S. Al-Dahouk, BfR)*
100 000 Euro, within KlauenFitNet 2.0 consortium (BMEL)
20 000, COST Workshop, Social Network Analysis in One Health Epidemiology
5 000 Euro, Deutsch-Polnische Wissenschaftsstiftung (together with A. Jarynowski)
7 000 Euro, Seeding funds for International Collaboration der FU Berlin (together with A. Lavrova)
3 500 Euro, Test scholarship for prospective PhD candidates at the FU Berlin (together with A. Sergeeva)
3 000 Euro, Test scholarship for prospective PhD candidates at the FU Berlin (together with O. Dogonasheva)
Ca. 20 000 Euro, 2 Student positions within CeDIS Data Literacy Initiative of the FU Berlin
Ca. 3 000 Euro, Grant for preparation of DFG-Application by FU Berlin for A. Jarynowski

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SELECTED PUBLICATIONS

1. N Andresen, M Wöllhaf, K Hohlbaum, L Lewejohann, O Hellwich, C Thöne-Reineke, and **V Belik**, *Towards a fully automated surveillance of well-being status in laboratory mice using deep learning: Starting with facial expression analysis.* Plos one*,* 15(4):e0228059*,* (2020) https://doi.org/10.1371/journal.pone.0228059
2. A Zyubin, A Lavrova, O Manicheva, M Dogonadze, **Vitaly Belik**, M Demin, I Samusev. The cell-wall structure variation in mycobacterium tuberculosis with different drug sensitivity using raman spectroscopy in the high-wavenumber region. *Laser Physics Letters*, 17(6):065602, (2020) https://doi.org/10.1088/1612-202X/ab8796
3. A Jarynowski, M Wójta-Kempa, **V Belik**, Perception of Emergent Epidemic of COVID-2019 / SARS CoV-2 on the Polish Internet, preprint (2020) http://dx.doi.org/10.2139/ssrn.3572662
4. A Jarynowski, M Wojta-Kempa, D Płatek, Ł Krzowski, **V Belik**, Mobility as a key variable explaining regional differences in infection dynamics - Preliminary results (in Polish) (2020)
5. N Andresen, M Wöllhaf, K Hohlbaum, L Lewejohann, O Hellwich, C Thöne-Reineke, and **V Belik**, Black mice dataset (2019) http://dx.doi.org/10.14279/depositonce-9403
6. J Heinicke, S Ibscher, **V Belik***, T Ammon*, *Time series model of heat induced stress in dairy cows as measured by pedometers*, J Thermal Biology, 82, 23-32 (2019) https://doi.org/10.1016/j.jtherbio.2019.03.011
7. D S Esmedljaeva, A I Lavrova, **V Belik**, E B Postnikov. Identification of markers of acute inflammatory process in the pulmonary tuberculosis. *2019 International Conference on Intelligent Informatics and Biomedical Sciences (ICIIBMS)*, 313–314. IEEE (2019) https://doi.org/10.1109/ICIIBMS46890.2019.8991449
8. A Zyubin, A Lavrova, O Manicheva, M Dogonadze, **V Belik**, I Samusev, *Raman spectroscopy reveals M. tuberculosis strains with different antibiotic susceptibility*, Laser Physics Letters 16 (8), 085602 (2019) https://doi.org/10.1088/1612-202X/ab2641
9. AI Lavrova, DS Esmedljaeva, **V Belik***, EB Postnikov*, *Matrix metalloproteinases as markers of acute inflammation process in the pulmonary tuberculosis*, MDPI *Data*, *4*(4), 137 (2019) https://doi.org/10.3390/data4040137
10. **V Belik**, A Fengler, F Fiebig, HHK Lentz, P Hövel, *Controlling contagious processes on temporal networks via adaptive rewiring*, preprint arXiv:1509.04054, PLOS ONE (to re-submitted) (2020)
11. A Lavrova, K Müller, **V Belik** et al. *Lameness prediction based on pedometer sensors in dairy cows* (2020) (preprint)
12. A Jarynowski, A Buda, D Platek, **V Belik**, *African Swine Fever Awareness in the Internet Media in Poland -exploratory review. E-Methodology*, *6*(6), 100-115 (2020) https://doi.org/10.15503/emet2019.100.115
13. **V Belik**, A Pacheco, R Xulvi-Brunet, R Pieper, *Abnormal conditions delay effective age as predicted by gut microbiome composition in piglets*, International Conference on Bioinformatics and Biomedical Engineering, Granada (2018)
14. **V Belik**, A Karch, P Hövel, and R Mikolajczyk, *Leveraging topological and temporal structure of hospital referral networks for epidemic control,* in Temporal Network Epidemiology, Springer (2017)
15. F Schirdewahn, V Colizza, HHK Lentz,A Koher, **V Belik**, P Hövel, *Surveillance for Outbreak Detection in Livestock-Trade Networks, in Temporal Network Epidemiology*, Springer (2017)
16. **V Belik**, P Hövel, R Mikolajczyk, *Control of Epidemics on Hospital Networks*, in Control of Self-Organizing Nonlinear Systems, Springer, 431-440 (2016)
17. CM Schneider, **V Belik**, T Couronné, Z Smoreda, MC González, *Unravelling daily human mobility motifs*, Journal of The Royal Society Interface 10 (84), 20130246 (2013) http://dx.doi.org/10.1098/rsif.2013.0246
18. **V Belik**, T Geisel, D Brockmann, *Natural human mobility patterns and spatial spread of infectious diseases*, Physical Review X 1 (1), 011001 (2011) https://doi.org/10.1103/PhysRevX.1.011001
19. **V Belik**, T Geisel, D Brockmann, *Recurrent host mobility in spatial epidemics: beyond reaction-diffusion*, The European Physical Journal B 84 (4), 579-587 (2011)
20. **V Belik,** T Geisel, D Brockmann, *The impact of human mobility on spatial disease dynamics*, Proceedings of Computational Science and Engineering IEEE Conference (2009)
21. **V Belik**, D Brockmann, *Accelerating random walks by disorder*, New Journal of Physics 9 (3), 54 (2007)
22. IM Sokolov, **VV Belik**, *Competition between Lévy jumps and continuous drift*, Physica A: Statistical Mechanics and its Applications 330 (1), 46-52 (2003)
23. **V Belik**, T Kaufholz, T Selhorst, working title: *Infection spread in the highly temporally resolved pig contact network* (in preparation).
24. **V Belik**, C Meyer-Grant, working title: *A Markov state model for GPS tracked cat movements* (in preparation)

STUDENT SUPERVISION

Current Students

1. Taras Günther, PhD Student, *Modeling geographic spread of zoonoses.*
2. Francesco Galli, PhD Student (together with Prof. Salome Dürr, Vetsuisse, Bern), *Missing transmission links in Swiss pig trade network.*
3. Dimitri Stepanov, PhD Student (together with Prof. G. Wolber), *Machine learning for prediction of biochemical properties.*
4. Damiano Ferrari, MS Statistics, *Development of Machine learning algorithm for Listeria source attribution.* (together with PD Roswitha Merle)
5. Andrea Palmini, MS Statistics, *Effects of heat stress in dairy cows as revealed by rumination time series.*
6. Ksenia Ovadenko, MS Statistics, *Statistical Analysis of Compositional Sparse Overdispersed Microbiome Data*
7. Sarah Jahn, BS Bioinformatics, *Evaluation of quarter based milking control algorithms.*
8. Bashar Morouj, BS Bioinformatics, *Development of a visualization tool for TB modeling in lungs. RNAseq analysis of canine genome.*
9. Alisa Sergeeva, Veterinary Student Intern (Bovine well-being scoring)
10. Thomas Simonis, MS Mathematics, *Spatio-temporal modeling of lung destruction due to TB*.
11. Willie Ekaputra, BS Bioinformatics, student intern, *Comparative Analysis of Canine Tumor Transcriptome*.

Former Students

12. Victor Jacob, MS Computer Science, *TB modeling in lungs.*
13. Adrian Pacheco, Student Intern, Physics (Ecuador), *Microbiome Analysis.*
14. Sarah Jahn, BS Bioinformatics, *Evaluation of quarter based milking control algorithms.*
15. Jelena Larina, MS Statistics, *Toxocara prevalence in Germany: a statistical approach in calculating the necessary sample size for the future study.*
16. Stephanie Ibscher, MS Statistics, now at Pfizer, *Time series analysis of animal sensor data: heat-stress effects on dairy cows.*
17. Niek Andersen, MS Computer Science (together with Prof. O. Hellwich, TU Berlin), *Deep learning for mouse pain recognition.*
18. Alexander Fengler, MS Physics (together with Dr. P. Hövel, TU Berlin), *Controlling spreading processes on animal trade network.*
19. Frederik Wolf, MS Physics (together with Dr. P. Hövel, TU Berlin), *Communities in temporal networks.*
20. Nils Affolter, MS Physics / Mathematics (together with Dr. P. Hövel, TU Berlin), *Reconciling reality and modeling approaches for temporal networks.*
21. Taina Castro, BS Biomathematics, student intern (together with Prof. M. Doherr) *Time series analysis.*

GRANT REVIEWING

Deutsche Forschungsgemeinschaft

REVIEWER SELECTED JOURNALS

Scientific Reports
Journal of the Royal Society Interface
Physical Review Letters, Physical Review E
PLOS ONE, PLOS Computation Biology
Frontiers Veterinary Medicine, MDPI Animals

PROGRAMMING

Linux / Unix / Mac OS / Windows
Python (Jupyter, TensorFlow, scikit-learn) / R / JS / HTML / C/C++ / Bash / Matlab / Mathematica / SQL / VB

LANGUAGES

German
English
Russian
French (basic)