CURRICULUM VITAE

ANDREI C. BURA

Contact:

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Degrees:

- 2019, PhD in Mathematics, Virginia Polytechnic Institute and state university (VT), Blacksburg, USA

- 2014, Masters in Mathematics (research profile), University of Southern Denmark - Odense, Denmark

- 2012, Bachelors in Mathematics, Babes Bolyai University - Cluj Napoca, Romania
- 2009, Bachelors in Physics, Babes Bolyai University - Cluj Napoca, Romania

Work experience:

- 2020 - present, Research Scientist in the Mathematical Division of the Biocomplexity Institute & Initiative at the University of Virginia
- 2020 - 2022, Postdoctoral Research Associate in the Mathematical Division of the Biocomplexity Institute & Initiative at the University of Virginia
- 2015 - 2019, Graduate Research Assistant (Mathematics), Mathematical Biocomplexity Lab -Biomplexity Institute at VT
- 2011 - 2012, Mathematics teacher (V-VIII grades), Metes School - Alba, Romania

Awards:

- undergraduate meritorious scholarship for theoretical physics UB RO 2007-2009
- mayoral prize for national Physics olympiad ONF RO 2006

Skills:

- Programming: Wolfram Language (Mathematica), C++, Python, LaTeX.

◦ Languages: English(fluent), Romanian(fluent), French(intermediate).

Academia:

◦ Biocomplexity Institute Research symposium 2022, Charlottesville Virginia - short talk, organizer.
◦ SIAMADS conference 2019, Snowbird Utah - talk.
◦ BEER symposium 2019, La Crosse Wisconsin - invited talk.
◦ Biocomplexity Institute Research symposium 2017, Blacksburg Virginia - organizer.
◦ P&G Poster Session 2016, Blacksburg Virginia - poster.
◦ Biocomplexity Institute Research symposium 2015, Blacksburg Virginia - short talk, panel talk.
◦ ACSB Conference 2015, Farmington Connecticut - short talk, poster.

Publications:

In print:

◦ Christopher Barrett, Andrei Bura, Qijun He, Fenix Huang and Christian Reidys. (2023). **The arithmetic topology of genetic alignments.**
Journal of Mathematical Biology, (86), 34

◦ C. Bura, Andrei & He, Qijun & M. Reidys, Christian. (2022). **Loop Homology of Bi-secondary Structures II.**
J. Algebr. Comb., (56), 785-798

◦ C. Bura, Andrei & He, Qijun & M. Reidys, Christian. (2021). **Weighted Homology of Bi-Structures over Certain Discrete Valuation Rings.**
Mathematics 9 (7), 744

◦ C Barrett, AC Bura, Q He, FW Huang, TJX Li, MS Waterman, CM Reidys. (2021). **Multiscale feedback loops in SARS-CoV-2 viral evolution.**
Journal of Computational Biology 28 (3), 248-256

∘ C. Bura, Andrei & He, Qijun & M. Reidys, Christian. (2021). **Loop Homology of Bi-secondary Structures.**
Discrete Mathematics, 344 (6), 112371

∘ Chen, Ricky & M. Reidys, Christian & C. Bura, Andrei. (2019). **D-chain tomography of networks: a new structure spectrum and an application to the SIR process.**
SIAM J. Appl. Dyn. Syst., 18(4), 21812201

Under review:

∘ Andrei C. Bura, Qijun He, Christian M. Reidys. (2023). **The combinatorics of weighted cohomology.**
J. Algebr. Comb.

∘ C Barrett, AC Bura, Q He, FW Huang, TJX Li, CM Reidys. (2023). **Motifs in SARS-CoV-2 evolution.**
RNA

∘ Andrei C. Bura, Neelav S. Dutta, Thomas J. X. Li, Christian M. Reidys. (2022). **A computational framework for weighted simplicial homology.**
Journal of Symbolic Computation

In preparation:

∘ Andrei Bura, Qijun He. (2022). **Motifs and dyads in sequence alignments.**

∘ C. Bura, Andrei & Chen, Ricky & M. Reidys, Christian. (2016). **On a lower bound for sorting signed permutations by reversals** (Working Title).