Žiga Virk

Personal Information

Languages Slovene, English, basic German, Croatian, and Serbian

Webpage http://www.fmf.uni-lj.si/~virk/

Education

2006–2009 **PhD in Topology**, *University of Tennessee*, Knoxville TN, USA.

title Countable Groups as Fundamental Groups of Compacta in four-Dimensional Euclidean space

supervisor Jerzy Dydak

2005–2010 **PhD in Topology**, *University of Ljubljana*, Ljubljana, Slovenia.

title Small loop spaces

supervisors Dušan Repovš, Matija Cencelj

2000–2005 **Diploma (5-year Bachelor)**, *University of Ljubljana*, Ljubljana, Slovenia.

title Lens spaces

supervisors Petar Pavešić, Aleš Vavpetič

Experience

2017–2018 **JSKS funded Researcher**, *University of Ljubljana*, Ljubljana, Slovenia.

2015–2017 **Postdoctoral researcher in the group of prof. Herbert Edelsbrunner**, *Institute of Science and Technology*, Klosterneuburg, Austria.

2012–2015 **Assistant Professor**, *University of Ljubljana*, Ljubljana, Slovenia.

2010–2012 **Assistant**, *University of Ljubljana*, Ljubljana, Slovenia.

2009–2010 **Young researcher**, *Institute of Mathematics, Physics and Mechanics*, Ljubljana, Slovenia.
Research position with a light teaching load.

2007–2009 **Graduate teaching Associate**, *University of Tennessee*, Knoxville, TN, USA.

2006–2007 **Graduate teaching Assistant**, *University of Tennessee*, Knoxville, TN, USA.

2005–2006 **Young researcher**, *Institute of Mathematics, Physics and Mechanics*, Ljubljana, Slovenia.
Research position with a light teaching load.

2005-2018 **Extensive teaching and mentoring experience in Slovenia, USA, and Austria**, *courses taught at the higher level: computational topology, topology, differential geometry, complex analysis.*

Scientific interests

Computational topology, coarse geometry.

Topology of wild spaces, inverse limits of multivalued functions.

Talks

2017 ÖMG-DMV-Congress 2017: *1-dimensional intrinsic persistence of closed Riemannian manifolds*, Salzburg, Austria

2017 ÖMG-DMV-Congress 2017: *A comparison of topologies on the fundamental group*, Salzburg, Austria

2017 FOCM 2017: *Intrinsic 1-dimensional persistence of geodesic spaces*, Barcelona, Spain

2017 Geometric Topology and Geometry of Banach spaces: *Coarse dimension raising results*, Eilat, Israel

2016 Seminar of the Ergodic Theory and Dynamical Systems group, *Fundamental groups of inverse limits*, Vienna, Austria

2016 Workshop: Large Scale Dimensions: *Coarsely n-to-*1 *maps*, Regensburg, Germany

2015 Dubrovnik VIII - Geometric Topology, Geometric Group Theory and Dynamical Systems: *Coarsely* $n-to-1$ *maps*, Dubrovnik, Croatia

2014 Topology seminar: *Coarsely n-to-1 maps*, UT Knoxville, USA

2014 11th Annual Workshop of Topology Research Group at the Nipissing University: *Interplay between metric and coarse categories: Coarsely n-to-1 maps*, North Bay, Canada

2013 28th Summer Conference on Topology and its Applications: *Dimension-raising maps in a large scale*, North Bay, Canada

2012 Topology Symposium, Kobe City, Japan: *Coarse geometry*

2012 Geometric Topology Workshop 2012, Kobe City, Japan: a series of four lectures on Coarse geometry

2011 Dubrovnik VII – Geometric Topology: *On homotopically Hausdorff spaces*, Croatia

2011 Workshop on Topology of Wild Spaces and Fractals: *A homotopically Hausdorff space which does not admit the universal covering space*, Strobl, Austria

2009 Spring Topology and Dynamics Conference 2009: *Realizations of Countable Groups as Fundamental Groups of Compacta*, University of Florida, Gainesville, FL, USA

2008 The Noncommutative Geometry Seminar: *Realizations of Countable Groups as Fundamental Groups of Compacta*, Vanderbilt University, Nashville, TN, USA

2006-2010 Numerous talks at Topology Seminar, University of Tennessee, Knoxville, TN, USA

2004-2017 Numerous talks at Seminar of Geometric Topology and Topological Seminar, University of Ljubljana, Slovenia

Research visits of longer duration

2015 Research visit at IST Vienna, Austria. Project work with Herbert Edelsbrunner on the field of computational topology. Funded by the ACAT (Applied Computational and Algebraic Topology) project of the ESF (European Science Foundation). March 2 - June 3 2015.

Funding

2006-2009 Ad Futura (Slovenia) funding of exchange visits

2017-2018 Grant by JSKS (Slovenia) funding a one-year research position

Reviewing service

Journals	Journal of Topology and Analysis, Foundations of Computational Mathematics, Topology and its Applications, Algebraic and Geometric Topology, Topology proceedings, Rocky Mountain Journal of Mathematics, Journal of Homotopy and Related Structures, Fundamenta Mathematicae, Italian Journal of Pure and Applied Mathematics
Database	Zentralblatt MATH

Mentoring

Bachelor students	Neža Žager Korenjak, Vesna Iršič, Veno Mramor, Žiga Lukšič, Mojca Rojko, Gregor Novak
Masters students	Matjaž Cerar (coadviser)
Stundet interns	Stefania Ebli

Publications

1 Ž. Virk and A. Zastrow: *A new topology on the universal path space*, Topology and its Applications 231(2017), 186–196.

2 K. Austin and Ž. Virk: *Higson Compactification and Dimension Raising*, Topology and its Applications 215(2016), 45–57.

3 K. Austin and Ž. Virk: *Coarse metric approximation*, Topology and its Applications 202(2016), 194–204.

4 J. Dydak and Ž. Virk: *Preserving coarse properties*, Revista Matemática Complutense 29(2016), 191–206.

5 A. Vavpetič and Ž. Virk: *The right homotopy shift in the fundamental group of inverse limits*, Topology and its Applications 208(2016), 40–54.

6 A. Vavpetič and Ž. Virk: *On the fundamental groups of inverse limits*, Bull. Malays. Math. Sci. Soc. (2016), doi:10.1007/s40840-016-0327-1.

7 J. Dydak and Ž. Virk: *Inducing maps between Gromov boundaries*, Mediterr. J. Math. (2015), doi:10.1007/s00009-015-0650-z.

8 M. Cencelj, D. Repovš, and Ž. Virk: *Multiple perturbations of a singular eigenvalue problem*, Nonlinear Analysis, Theory, Methods and Applications 119(2015), 37–45.

9 Ž. Virk and A. Zastrow: *The comparison of topologies related to various concepts of generalized covering spaces*, Topology and its Applications 170C(2014), 52–62.

10 T. Miyata and Ž. Virk: *Dimension-Raising Maps in a Large Scale*, Fundamenta Mathematicae 223(2013), 83–97.

11 Ž. Virk and A. Zastrow: *A homotopically Hausdorff space which does not admit the universal covering space*, Topology and its Applications 160(2013), 656–666.

12 Ž. Virk: *Realizations of Countable Groups as Fundamental Groups of Compacta*, Mediterranean Journal of Mathematics 10(2013), 1573–1589.

13 D. Repovš, W. Rosicki, Ž. Virk, and A. Zastrow: *On Minc' sheltered middle path*, Topology and its Applications 159(2012), 2609–2620.

14 Ž. Virk: *A generalization of the Levin-Rubin-Schapiro factorization theorem*, Topology and its Applications 159(2012), 695–703.

15 M. Cencelj, J. Dydak, A. Vavpetič, and Ž. Virk: *A combinatorial approach to coarse geometry*, Topology and its Applications 159(2012), 646–658.

16 J. Dydak and Ž. Virk: *An alternate proof that the fundamental group of a Peano continuum is finitely presented if the group is countable*, Glasnik Matematicki, Volume 46, no.2(2011).

17 H. Fischer, D. Repovš, Ž. Virk, and A. Zastrow: *On semilocally simply connected spaces*, Topology and its Applications 158(2011), 397–408.

18 Ž. Virk: *Homotopical smallness and closeness*, Topology and its Applications 158(2011), 360–378.

19 Ž. Virk: *Small loop spaces*, Topology and its Applications, 157(2010), 451–455.

20 M. Cencelj, J. Dydak, J. Smrekar, A. Vavpetič, and Ž. Virk: *Compact maps and quasi-finite complexes*, Topology and its Applications, 154(2007), 3005–3020.

21 M. Cencelj, J. Dydak, J. Smrekar, A. Vavpetič, and Ž. Virk: *Algebraic properties of quasi-finite complexes*, Fundamenta Mathematicae 197(2007), 67–80.