

Research Interests

Low dimensional geometry and topology, hyperbolic geometry, Teichmüller and moduli spaces, random surfaces, random 3-manifolds, subgroup growth.

Employment

Sep. 2019 - : Maître de conférences, Institut de Mathématiques de Jussieu - Paris Rive Gauche, Sorbonne University, Paris

Jan. 2017 - Aug. 2019: Post-doc, University of Bonn

Aug. 2015 - Dec. 2016: Post-doctoral fellow, Max Planck Institute for Mathematics, Bonn

Feb. 2012 - Jun. 2015: Assistant, University of Fribourg

Mar. 2008 - May 2011: Analyst, Mercer, Arnhem

Jan. 2007 - Dec. 2007: Student assistant, Radboud University, Nijmegen

Nov. 2005 - Jun. 2007: Tutor Mathematics and Physics, Huiswerkinstituut Lindenholt, Nijmegen

Education

Jun. 2011 - Jun. 2015: Doctoral studies in Mathematics, University of Fribourg
Advisor: Hugo Parlier

Sep. 2008 - Mar. 2011: MSc. Mathematics *cum laude*, Radboud University Nijmegen

Sep. 2005 - Sep. 2009: BSc. Physics and Astronomy, Radboud University Nijmegen
Minor: Mathematics

Sep. 1999 - Jul. 2005: Atheneum, SG Lelystad

Longer research visits

Mar. 2017: IHP, Paris
Funded by: Université Pierre et Marie Curie.

Nov. 2014 - May 2015: Brown University, Providence, USA
Funded by: Mobility in project grant, Swiss National Science Foundation.

Mar. 2013: Erwin Schrödinger Institute for Mathematics and Physics, Vienna
Funded by: CSWM Continued education grant.

Grants

Swiss NSF Mobility in project grant PP00P2.128557, Nov. 2014 - May 2015
Amount: CHF 11160,-

CSWM Continued education grant, Mar 2013
Amount: CHF 750,-

Organization

Geometric Group Theory in Bonn III, 31 Jan. - 01 Feb., 2019.
Geometric Group Theory in Bonn II, 03 - 04 Dec., 2015.

Teaching experience

Sorbonne University, Paris (France):

Introduction to probability theory.

Tutorials, Spring 2021

Audience: BSc students in Mathematics.

Topology and Analysis.

Tutorials, Autumn 2020

Audience: BSc students in Mathematics.

Introduction to probability theory.

Tutorials, Spring 2020

Audience: BSc students in Mathematics.

Linear and bilinear algebra.

Tutorials, Autumn 2019

Audience: BSc students in Mathematics.

University of Bonn (Germany):

Teichmüller Theory.

Lecture course, Spring 2019

Audience: MSc students in Mathematics.

Simplicial volume.

Lecture course, Autumn 2018.

Audience: MSc students in Mathematics.

Random walks on linear groups.

Seminar, Autumn 2018.

Audience: MSc students in Mathematics.

Arithmetic groups.

Lecture course, Spring 2018.

Audience: MSc students in Mathematics.

Quantum unique ergodicity.

Seminar, Autumn 2017.

Audience: MSc and PhD students in Mathematics.

Property (T).

Seminar, Autumn 2017.

Audience: MSc students in Mathematics.

Random methods in geometry.

Lecture course, Spring 2017.

Audience: MSc students in Mathematics.

University of Fribourg (Switzerland):

Analysis III and IV.

Tutorials, Autumn 2013, Spring 2014.

Audience: BSc students in Mathematics and Physics.

Mathematical methods for computer scientists.

Tutorials, Spring 2012, Autumn 2012, Spring 2013.

Audience: BSc students in Mathematics and Computer Science.

Radboud University Nijmegen (The Netherlands):

Probability theory.

Tutorials, Autumn 2007.

Audience: BSc students in Mathematics and Physics.

Calculus 1 and 2.

Tutorials, Autumn 2007.

Audience: BSc students in Mathematics and Physics.

Electricity and Magnetism 1A.

Tutorials, Spring 2007.

Audience: BSc students in Chemistry and Molecular Life Sciences.

Student supervision

Sofia Amontova, Master's thesis (academic year 2018/2019)

Elizabeth Baker, Master's thesis (academic year 2018/2019)

Muhammad Ardiyansyah, Master's thesis (academic year 2017/2018)

Theo Demenge, internship (Feb. - May 2018).

Address

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Preprints

- B. Petri & J. Raimbault. *A model for random three-manifolds*.
Preprint, ArXiv e-prints (2009.11923), 2020.
- E. Baker & B. Petri. *Statistics of finite degree covers of torus knot complements*.
Preprint, ArXiv e-prints (2005.11956), 2020.
- M. Fortier Bourque & B. Petri. *Kissing numbers of regular graphs*.
Preprint, ArXiv e-prints (1909.12817), 2019.
- B. Petri. *Counting non-commensurable hyperbolic manifolds and a bound on homological torsion*.
Preprint, ArXiv e-prints (1709.01873), 2017.

Accepted papers

- M. Fortier Bourque & B. Petri. *Kissing numbers of closed hyperbolic manifolds*.
Amer. J. Math., to appear, 2021+.
Preprint, ArXiv e-prints (1905.11083), 2019.
- T. Budzinski, N. Curien & B. Petri. *The diameter of random Belyi surfaces*.
Algebr. Geom. Topol., to appear.
Available at ArXiv e-prints (1910.11809), 2019.
- T. Budzinski, N. Curien & B. Petri. *On the minimal diameter of closed hyperbolic surfaces*.
Duke Math. J., 170 (2): 365-377, 2021.
- S. Friedl, J. Park, B. Petri, J. Raimbault & A. Ray. *On distinct finite covers of 3-manifolds*.
Indiana Univ. Math. J., to appear, 2021+.
Available at ArXiv e-prints (1807.09861), 2018.
- T. Budzinski, N. Curien & B. Petri. *Universality for random surfaces in unconstrained genus*.
Electron. J. Combin., 26 (4): Paper 4.2, 2019.
- H. Baik, B. Petri & J. Raimbault. *Subgroup growth of right-angled Artin and Coxeter groups*.
J. Lond. Math. Soc. (2), 101 (2): 556 - 588, 2020.
- H. Baik, B. Petri & J. Raimbault. *Subgroup growth of virtually cyclic right-angled Coxeter groups and their free products*.
Combinatorica, 39 (4): 779 - 811, 2019.
- M. Mirzakhani & B. Petri. *Lengths of closed geodesics on random surfaces of large genus*.
Comment. Math. Helv., 94 (4): 869 - 889, 2019.
- B. Petri. *Hyperbolic surfaces with long systoles that form a pants decomposition*.
Proc. Amer. Math. Soc., 146 (3): 1069 - 1081, 2018.
- H. Baik, D. Bauer, I. Gekhtman, U. Hamenstädt, S. Hensel, T. Kastenholz, B. Petri & D. Valenzuela. *Exponential Torsion Growth for Random 3-Manifolds*.
Int. Math. Res. Notices. IMRN, 21: 6497 - 6534, 2018.
- B. Petri. & C. Thäle. *Poisson approximation of the length spectrum of random surfaces*.
Indiana Univ. Math. J., 67 (3): 1115 - 1141, 2018.

- P. Cahn, F. Fanoni & B. Petri. *Mapping class group orbits of curves with self-intersections.*
Israel J. Math., 223 (1): 53 - 74, 2018.
- B. Petri & A. Walker. *Graphs of large girth and surfaces of large systole.*
Math. Res. Lett., 25 (6): 1937 - 1956. 2018.
- H. Parlier & B. Petri. *The genus of curve, pants and flip graphs.*
Discrete Comput. Geom., 59 (1): 1 - 30, 2018.
- B. Petri. *Finite length spectra of random surfaces and their dependence on genus.*
J. Topol. Anal., 9 (4): 649 - 688, 2017.
- B. Petri. *Random regular graphs and the systole of a random surface.*
J. Topol., 10 (1): 211 - 267, 2017.