

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 and awards

Junior membership of the Institut Universitaire de France
Oct. 2023 - Sep. 2028

Tremplin Nouveaux Entrants, Sep. 2022 - Dec. 2022
Amount: EUR 10 000,-

Swiss NSF Mobility in project grant PP00P2.128557, Nov. 2014 - May 2015
Amount: CHF 11 160,-

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

Organization

Probability and Geometry in, on and of non-Euclidean spaces, CIRM, October 2023
Groups and Dynamics in Geometry, Ascona, May 29 - Jun. 2, 2023
Combinatorics of finite-index subgroups, IHP, Paris, 02 - 04 Nov. 2022
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):
Various BSc and MSc level courses and tutorials.
University of Bonn (Germany):
Various MSc level courses.
University of Fribourg (Switzerland):
Various BSc level tutorials.
Radboud University Nijmegen (The Netherlands):
Various BSc level tutorials.

Student supervision

Anna Roig Sanchis, PhD thesis (2021 -)
Co-supervised with Frédéric Naud
Mingkun Liu, PhD thesis (2019 - 2022)
Co-supervised with Vincent Delecroix and Anton Zorich
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

5. M. Liu & B. Petri. *Random surfaces with large systoles*.
Preprint, ArXiv e-prints (2312.11428), 2023.
4. M. Fortier Bourque, É. Gruda-Mediavilla, M. Pineault & B. Petri. *Two counterexamples to a conjecture of Colin de Verdière on multiplicity*.
Preprint, ArXiv e-prints (2312.03504), 2023.
3. M. Fortier Bourque & B. Petri. *Linear programming bounds for hyperbolic surfaces*.
Preprint, ArXiv e-prints (2302.02540), 2023.
2. T. Budzinski, N. Curien & B. Petri. *On Cheeger constants of hyperbolic surfaces*.
Preprint, ArXiv e-prints (2207.00469), 2022.
1. B. Petri. *Counting non-commensurable hyperbolic manifolds and a bound on homological torsion*.
Preprint, ArXiv e-prints (1709.01873), 2017.

Accepted papers

20. E. Baker & B. Petri. *Statistics of finite degree covers of torus knot complements*.
Ann. H. Lebesgue, to appear, 2024+
Available at ArXiv e-prints (2005.11956).
19. M. Fortier Bourque & B. Petri. *The Klein quartic maximizes the multiplicity of the first positive eigenvalue of the Laplacian*.
J. Differential Geom., to appear, 2024+
Available at ArXiv e-prints (2111.14699).
18. B. Petri & J. Raimbault. *A model for random three-manifolds*.
Comment. Math. Helv. 97 (4), 729 - 768, 2022.
17. M. Fortier Bourque & B. Petri. *Kissing numbers of regular graphs*.
Combinatorica, 42 (4), 529 - 551, 2022.
16. M. Fortier Bourque & B. Petri. *Kissing numbers of closed hyperbolic manifolds*.
Amer. J. Math., 144 (4), 1067-1085, 2022.
15. T. Budzinski, N. Curien & B. Petri. *The diameter of random Belyi surfaces*.
Algebr. Geom. Topol., 21: 2929-2957, 2021.
14. T. Budzinski, N. Curien & B. Petri. *On the minimal diameter of closed hyperbolic surfaces*.
Duke Math. J., 170 (2): 365-377, 2021.
13. S. Friedl, J. Park, B. Petri, J. Raimbault & A. Ray. *On distinct finite covers of 3-manifolds*.
Indiana Univ. Math. J., 70 (2): 809 - 846, 2021.
12. T. Budzinski, N. Curien & B. Petri. *Universality for random surfaces in unconstrained genus*.
Electron. J. Combin., 26 (4): Paper 4.2, 2019.
11. 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.

10. 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.
9. M. Mirzakhani & B. Petri. *Lengths of closed geodesics on random surfaces of large genus.*
Comment. Math. Helv., 94 (4): 869 - 889, 2019.
8. B. Petri. *Hyperbolic surfaces with long systoles that form a pants decomposition.*
Proc. Amer. Math. Soc., 146 (3): 1069 - 1081, 2018.
7. 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.
6. B. Petri. & C. Thäle. *Poisson approximation of the length spectrum of random surfaces.*
Indiana Univ. Math. J., 67 (3): 1115 - 1141, 2018.
5. P. Cahn, F. Fanoni & B. Petri. *Mapping class group orbits of curves with self-intersections.*
Israel J. Math., 223 (1): 53 - 74, 2018.
4. B. Petri & A. Walker. *Graphs of large girth and surfaces of large systole.*
Math. Res. Lett., 25 (6): 1937 - 1956. 2018.
3. H. Parlier & B. Petri. *The genus of curve, pants and flip graphs.*
Discrete Comput. Geom., 59 (1): 1 - 30, 2018.
2. B. Petri. *Finite length spectra of random surfaces and their dependence on genus.*
J. Topol. Anal., 9 (4): 649 - 688, 2017.
1. B. Petri. *Random regular graphs and the systole of a random surface.*
J. Topol., 10 (1): 211 - 267, 2017.