

Reading seminar on ℓ^2 invariants and fibering

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Fall 2026 - Spring 2027, Shanghai Center for Mathematical
Sciences

Time: 10:00am every Thursday

Place: SCMS 102

Here is the list of papers we plan to read in order.

1. A. Jaikin-Zapirain, Representations of group algebras into division rings and applications, 2026.
2. D. Kielak. Residually finite rationally solvable groups and virtual fibering. J. Amer. Math. Soc., 33(2):451–486, 2020.
3. B. Okun, K. Schreve, Orders and Fibering, to appear in Groups, Geometry, and Dynamics.
4. S. Fisher, Improved algebraic fibrings Compos. Math. 160, no. 9 (2021)
5. S. Fisher, On the cohomological dimension of kernels of maps to $\mathbb{Z}$, Geom. Topol. 30, no. 1 (2026).
6. F. Funke, D. Kielak, Alexander and Thurston norms, and the Bieri-Neumann-Strebel invariants for free-by-cyclic groups, Geom. Topol. (2018).
7. D. Kielak, The Bieri-Neumann-Strebel invariants via Newton polytopes. Invent. Math. 219 (2020), no. 3, 1009–1068.
8. D. Kielak, M. Linton. Virtually free-by-cyclic groups, GAFA (2024).
9. M. Linton, A. Jaikin-Zapirain, On the coherence of one-relator groups and their group algebras, Ann. of Math. (2) 201 (2025), 909–959.
10. G. Avramidi, B. Okun, K. Schreve, Mod p and torsion homology growth in nonpositive curvature, Inventiones Mathematicae 2021.

11. G. Avramidi, B. Okun, K. Schreve, Homology growth, hyperbolizations, and fibering, *Geometric and Functional Analysis*. Vol 34 303-376 (2024)
12. G. Avramidi, B. Okun, K. Schreve, Edge subdivisions and the L^2 -homology of right-angled Coxeter groups, *Edge subdivisions and the L^2 -homology of right-angled Coxeter groups*. *J. Lond. Math. Soc.* (2) 114 (2026), no. 1, Paper No. e70626, 26 pp.

Additional references

1. W. Lück, Survey on L^2 -invariants and 3-manifolds. *Bull. Lond. Math. Soc.* 53 (2021), no. 6, 1583–1620.
2. S. Friedl and W. Lück, ‘Universal L^2 -torsion, polytopes and applications to 3-manifolds’, *Proc. Lond. Math. Soc.* (3) 114 (2017) 1114–1151.
3. S. Friedl and W. Lück, ‘ L^2 -Euler characteristics and the Thurston norm’, *Proc. Lond. Math. Soc.* (3) 118 (2019) 857–900.
4. S. Friedl and W. Lück, ‘The L^2 -torsion function and the Thurston norm of 3-manifolds’, *Comment. Math. Helv.* 94 (2019) 21–52.
5. S. Friedl, W. Lück and S. Tillmann, ‘Groups and polytopes’, *Breadth in contemporary topology, Proceedings of Symposia in Pure Mathematics 102* (eds D. T. Gay and W. Wu; American Mathematics Society, Providence, RI, 2019) 57–77.
6. S. Friedl and S. Vidussi, ‘The Thurston norm and twisted Alexander polynomials’, *J. reine angew Math.* 707 (2015) 87–102.
7. S. Hughs, D. Kielak, BNSR invariants and ℓ^2 -homology, arXiv:2401.05545.
8. A. Jaikin-Zapirain, The universality of Hughes-free division rings. *Selecta Math.* (N.S.) 27 (2021), no. 4, Paper No. 74, 33 pp.
9. D. Kielak, Virtual fibering of manifolds and groups, arXiv:2510.01805.