

# Marina Prokhorova

## List of Publications

### Publications in Pure Mathematics and Mathematical Physics

#### Published

1. *Modeling of solutions of the heat equation and of the Stefan problem with dimension decrease.* Russian Academy of Sciences Doklady Mathematics 58 (1998), no.1, 88-90.
2. *On relative near-standardness in IST.* Siberian Mathematical Journal 39 (1998), no.3, 518–521.
3. *On the existence of factor sets by external equivalence relations in IST.* Siberian Mathematical Journal 43 (2002), no.4, 708-713.
4. *External sets properties in IST.* The Bulletin of Symbolic Logic. 8 (2002), Issue 1, 155-156.
5. *Heat equation on Riemann manifolds: morphisms and factorization to smaller dimension.* Proceedings of Institute of Mathematics of NAS of Ukraine, 43 (2002), 194–200.
6. (with M.I. Katsnelson) *Zero-energy states in corrugated bilayer graphene.* Physical Review B, 77 (2008), 205424.
7. *Homeomorphism problems arising in the theory of grid generation.* Proceedings of the Steklov Institute of Mathematics 261 (2008), suppl. 1, S165–S182.
8. *Criteria of homeomorphism in the theory of grid generation.* Zh. Vychisl. Mat. i Mat. Fiz. 52 (2012), no.5, 878–882 (in Russian); arXiv:1504.01087 [math.GT] (English translation).
9. *The spectral flow for Dirac operators on compact planar domains with local boundary conditions.* Communications in Mathematical Physics, 322 (2013), no. 2, 385–414.
10. *Factorization of the Reaction-Diffusion Equation, the Wave Equation, and Other Equations.* Proceedings of the Steklov Institute of Mathematics 287 (2014), suppl. 1, S156–S166.
11. *The structure of the category of parabolic equations. I.* CEUR Workshop Proceedings 1662 (2016), 121–133 (<http://ceur-ws.org/Vol-1662/top1.pdf>)
12. *The structure of the category of parabolic equations. II.* CEUR Workshop Proceedings 1662 (2016), 134–147 (<http://ceur-ws.org/Vol-1662/top2.pdf>)
13. *Self-adjoint local boundary problems on compact surfaces. I. Spectral flow.* Journal of Geometric Analysis, 31 (2021), no. 2, 1510–1554.

#### Accepted for publication

14. *Self-adjoint local boundary problems on compact surfaces. II. Family index.* To appear in the Journal of Noncommutative Geometry; arXiv:1809.04353 [math-ph] (2018), 46 pp.
15. *Spectral sections.* To appear in the Israel Journal of Mathematics; arXiv:2008.04672 [math.SP] (2020), 37 pp.

#### Preprints

16. *Spaces of unbounded Fredholm operators. I. Homotopy equivalences.* arXiv:2110.14359 [math.KT] (2021), 24 pp.

### Publications in Applied Mathematics

1. *The shape of a growing dendrite.* Journal of Engineering Physics and Thermophysics 61 (1991), no.5, 1394–1400.
2. *Self-similar solutions of the Stefan problem.* Journal of Engineering Physics and Thermophysics 63 (1992), no.4, 1032–1036.
3. (with L.D. Zabezhinskii, V.V. Prokhorov, M.N. Mil'shtein, S.G. Stakheev) *Statement and personal-computer-aided realization of the conjugate problem of heat transfer in a power-technological boiler with a moving bed of dispersed heat-transfer agent.* Journal of Engineering Physics and Thermophysics 70 (1997), no.5, 744–748.