CURRICULUM VITAE

Name RYBALKO Volodymyr

Position senior research fellow,
Mathematical Division,
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkov, Ukraine

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Education

- post-graduate:
  Institute for Low Temperature Physics and Engineering (1996-1999)
- graduate: Kharkov National University (1991-1996),
  Diploma in Applied Mathematics, 1996

Ph.D. Thesis

- "Homogenized models with memory"
  Institute for Low Temperature Physics and Engineering, 2003, scientific advisor E.Ya.Khruslov

Employment

- junior research fellow, B. Verkin Institute for Low Temperature Physics and Engineering (1999-2006)
- research fellow, B. Verkin Institute for Low Temperature Physics and Engineering (2007-2009)
- senior research fellow, B. Verkin Institute for Low Temperature Physics and Engineering (2010- present time)

Fields of research - homogenization theory
- nonlinear differential equations

Publications

PAPERS

1. Asymptotic behavior of the Green function of the first boundary value problem, Mat. Fiz. Anal. Geom. 6:1-2 (1999), 100-123

2. Asymptotic behaviour of Green's function of the Neumann boundary-value problem, Dopov. Nats. Akad. Nauk Ukr., Mat. Pryr. Tekh. Nauky 2000, No.6, 37-42

3. An averaged model of eigenoscillations of the elastic medium with a large number of absolutely rigid heavy inclusions, Dopov. Nats. Akad. Nauk Ukr., Mat. Pryr. Tekh. Nauky 2001, No.6, 18-24

4. Vibrations of elastic systems with a large number of tiny heavy inclusions, Asymptotic Anal. 32:1 (2002), 27-62

5. Vibrations of elastic systems with a large number of tiny heavy inclusions , C. R., Math., Acad. Sci. Paris 334:3 (2002), 245-250

6. Asymptotic analysis of a double porosity model with thin fissures (with L. Pankratov), Sb. Math. 194:1 (2003), 123-150

7. Homogenized model of reaction-diffusion in a porous medium (with L. Pankratov and A. Piatnitskii), C.R. Mecanique 331:4 (2003), 253-258

8. Nonexistence of Ginzburg-Landau minimizers with prescribed degree on a boundary of a doubly connected domain (with L.Berlyand and D.Golovaty), C.R. Mathematique 343:1 (2006), 63-68

9. On the homogenization of some double porosity models with periodic thin structures (with B. Amaziane and L. Pankratov), Applicable Analysis 88:10&11 (2009), 1469 - 1492

10. Near boundary vortices in a magnetic Ginzburg-Landau model: Their locations via tight energy bounds (with L.Berlyand and O.Misiats), J. Funct. Anal. 258:5 (2010), 1728-1762

11. Solutions with vortices of a semi-stiff boundary value problem for the Ginzburg-Landau equation (with L. Berlyand), J. Eur. Math. Soc. (JEMS) 12:6 (2010), 1497-1531

12. Minimizers of the magnetic Ginzburg-Landau functional in simply connected domain with prescribed degree on the boundary (with L.Berlyand and O.Misiats), Commun. Contemp. Math. 13:1(2011), 53-66

13. Homogenization of boundary value problems for monotone operators in perforated domains with rapidly oscillating boundary conditions of Fourier type (with A. Piatnitski), J. Math. Sci. 177:1 (2011), 109-140

14. Renormalized Ginzburg-Landau energy and location of near boundary vortices (with L.Berlyand and N.K.Yip), Netw. Heterog. Media 7:1 (2012), 179-196

15. Homogenized description of multiple Ginzburg-Landau vortices pinned by small holes (with L.Berlyand), Netw. Heterog. Media 8:1 (2013) 115-130

16. Vortex phase separation in mesoscopic superconductors (with O. Iaroshenko, V. M. Vinokur, L.Berlyand), Scientific Reports: Nature Publishing Group **3** (2013)

17. Local minimizers of the magnetic Ginzburg-Landau functional with S^1-valued order parameter on the boundary, J. Math. Phys., Anal., Geom. 10:1 (2014), 134-151

18. Minimax critical points in Ginzburg-Landau problems with semi-stiff boundary conditions: existence and bubbling (with L.Berlyand, P. Mironescu, E. Sandier), Comm. in PDEs 39:5 (2014), 946-1005

19. Ground states of singularly perturbed convection-diffusion equation with oscillating coefficients (with A.Piatnitski, A.Rybalko), ESAIM : COCV 20:4 (2014), 1059-1077

20. On the first eigenpair of singularly perturbed operators with oscillating coefficients (with A.Piatnitski)), Comm. in PDEs 41:1 (2016), 1-31

21. Singularly perturbed spectral problems with Neumann boundary conditions (with A.Piatnitski, A.Rybalko), Coplex Var. and Elliptic Equations 61:2 (2016), 252-274

22. Phase-field model of cell motility: Traveling waves and sharp interface (with L.Berlyand, M.Potomkin), Comptes Rendues Math. 354:10 (2016), 986-992

23. On an evolution equation in a cell motility model (with L.Berlyand, M. Mizuhara, L.Zhang) Physica D: Nonlinear Phenomena 318-319 (2016) 12-25

24. Sharp interface limit in a phase field model of cell motility (with L.Berlyand, M.Potomkin), Netw. Heterog. Media 12:4 (2017) 551-590

25. On approximation of Ginzburg–Landau minimizers by S^1-valued maps in domains with vanishingly small holes (with L.Berlyand, D.Golovaty, O.Iaroshenko), J. Differential Equations 264:2 (2018) 1317-1347

26. Bifurcation of traveling waves in a Keller-Segel type free boundary model of cell motility (with L.Berlyand, J.Fuhrmann), Commun. Math. Sci. 16:3 (2018) 735-762

BOOK

Getting Acquainted with Homogenization and Multiscale (with L.Berlyand), Compact Textbooks in Mathematics, Springer, 2018.