

Departmental List of Publications for the Year 2008

- [1] Jeff Baker, Michael Loss, and Günter Stolz. Minimizing the ground state energy of an electron in a randomly deformed lattice. *Comm. Math. Phys.*, 283(2):397–415, 2008.
- [2] A. Balinsky, W. D. Evans, D. Hundertmark, and R. T. Lewis. On inequalities of Hardy-Sobolev type. *Banach J. Math. Anal.*, 2(2):94–106, 2008.
- [3] A. Balinsky, W. D. Evans, and Y. Saito. Dirac-Sobolev inequalities and estimates for the zero modes of massless Dirac operators. *J. Math. Phys.*, 49(4):043514, 10, 2008.
- [4] C. Bennewitz, B. M. Brown, and R. Weikard. Inverse spectral and scattering theory for the half-line left-definite Sturm-Liouville problem. *SIAM J. Math. Anal.*, 40(5):2105–2131, 2008/09.
- [5] Malcolm Brown, Marco Marletta, Serguei Naboko, and Ian Wood. Boundary triplets and M -functions for non-selfadjoint operators, with applications to elliptic PDEs and block operator matrices. *J. Lond. Math. Soc. (2)*, 77(3):700–718, 2008.
- [6] N. Chernov and D. Dolgopyat. Particle drift in self-similar billiards. *Ergodic Theory Dynam. Systems*, 28(2):389–403, 2008.
- [7] N. Chernov and P. N. Sapirstein. Fitting circles to data with correlated noise. *Computational Statistics and Data Analysis*, 52:5328–5337, 2008.
- [8] N. Chernov and H.-K. Zhang. Improved estimates for correlations in billiards. *Comm. Math. Phys.*, 277(2):305–321, 2008.
- [9] Nikolai Chernov. Sinai billiards under small external forces. II. *Ann. Henri Poincaré*, 9(1):91–107, 2008.
- [10] Piotr T. Chruściel, Yanyan Li, and Gilbert Weinstein. Mass and angular-momentum inequalities for axi-symmetric initial data sets. II. Angular momentum. *Ann. Physics*, 323(10):2591–2613, 2008.
- [11] Clinton P. Curry, John C. Mayer, and E. D. Tymchatyn. Characterizing indecomposable plane continua from their complements. *Proc. Amer. Math. Soc.*, 136(11):4045–4055, 2008.
- [12] Christian Hainzl, Eman Hamza, Robert Seiringer, and Jan Philip Solovej. The BCS functional for general pair interactions. *Comm. Math. Phys.*, 281(2):349–367, 2008.
- [13] Christian Hainzl, Mathieu Lewin, and Robert Seiringer. A nonlinear model for relativistic electrons at positive temperature. *Rev. Math. Phys.*, 20(10):1283–1307, 2008.
- [14] Christian Hainzl, Mathieu Lewin, and Jan Philip Solovej. The thermodynamic limit of quantum Coulomb systems: a new approach. In *Mathematical results in quantum mechanics*, pages 97–116. World Sci. Publ., Hackensack, NJ, 2008.
- [15] Christian Hainzl and Robert Seiringer. The BCS critical temperature for potentials with negative scattering length. *Lett. Math. Phys.*, 84:99–107, 2008.
- [16] Christian Hainzl and Robert Seiringer. Critical temperature and energy gap for the BCS equation. *Phys. Rev. B*, 77:184517, 2008.
- [17] Christian Hainzl and Robert Seiringer. Spectral properties of the BCS gap equation of superfluidity. In *Mathematical results in quantum mechanics*, pages 117–136. World Sci. Publ., Hackensack, NJ, 2008.
- [18] Yulia Karpeshina and Young-Ran Lee. Absolutely continuous spectrum of a polyharmonic operator with a limit periodic potential in dimension two. *Comm. Partial Differential Equations*, 33(7-9):1711–1728, 2008.
- [19] Hisao Kato and Christopher G. Mouron. Hereditarily indecomposable compacta do not admit expansive homeomorphisms. *Proc. Amer. Math. Soc.*, 136(10):3689–3696, 2008.
- [20] Alexander Kiselev, Fedor Nazarov, and Roman Shterenberg. Blow up and regularity for fractal Burgers equation. *Dyn. Partial Differ. Equ.*, 5(3):211–240, 2008.
- [21] Alexander Kiselev, Roman Shterenberg, and Andrej Zlatoš. Relaxation enhancement by time-periodic flows. *Indiana Univ. Math. J.*, 57(5):2137–2152, 2008.
- [22] Pavel Kurasov, Igor Lelyavin, and Serguei Naboko. On the essential spectrum of a class of singular matrix differential operators. II. Weyl’s limit circles for the Hain-Lüst operator

- whenever quasi-regularity conditions are not satisfied. *Proc. Roy. Soc. Edinburgh Sect. A*, 138(1):109–138, 2008.
- [23] Jun-Fang Li and Shihshu Walter Wei. A p -harmonic approach to the generalized Bernstein problem. *Commun. Math. Anal.*, (Conference 1):35–39, 2008.
- [24] Peter V. O’Neil. *Beginning partial differential equations*. Pure and Applied Mathematics (Hoboken). Wiley-Interscience [John Wiley & Sons], Hoboken, NJ, second edition, 2008.
- [25] Yoshimi Saitō and Tomio Umeda. The asymptotic limits of zero modes of massless Dirac operators. *Lett. Math. Phys.*, 83(1):97–106, 2008.
- [26] Yoshimi Saitō and Tomio Umeda. The zero modes and zero resonances of massless Dirac operators. *Hokkaido Math. J.*, 37(2):363–388, 2008.
- [27] Roman Shterenberg. On discrete spectrum of the perturbed periodic magnetic Schrödinger operator with degenerate lower edge of the spectrum. In *Spectral theory of differential operators*, volume 225 of *Amer. Math. Soc. Transl. Ser. 2*, pages 215–227, Providence, RI, 2008. Amer. Math. Soc.
- [28] T. Smith, B. Mullins, R. Cochran, J. Mayer, and M. Shores. A partnership to promote inquiry-based mathematics instruction. In *Electronic proceedings of the 2008 SIGMAA conference on Research in Undergraduate Mathematics Education*, 2008.
- [29] James Robert Ward, Jr. A nonresonance condition for boundary value problems. *Adv. Non-linear Stud.*, 8(4):655–662, 2008.
- [30] Shihshu Walter Wei, Jun-Fang Li, and Lina Wu. Generalizations of the uniformization theorem and Bochner’s method in p -harmonic geometry. *Commun. Math. Anal.*, (Conference 1):46–68, 2008.
- [31] H. Zou. A priori estimates, existence, and nonexistence for cooperative quasilinear elliptic systems. *Mat. Sb.*, 199(4):83–106, 2008.
- [32] Heng Hui Zou. A priori estimates and existence for quasi-linear elliptic equations. *Calc. Var. Partial Differential Equations*, 33(4):417–437, 2008.