

## Publications

- (129) pdf M. van den Berg, D. Bucur, *On localisation of eigenfunctions of the Laplace operator*, submitted.
- (128) pdf M. van den Berg, A. Malchiodi, *On some variational problems involving capacity, torsional rigidity, perimeter and measure*, *Advances in Calculus of Variations* **16**, 961–974 (2023).
- (127) pdf M. van den Berg, H. Aikawa, J. Masamune, *Intrinsic ultracontractivity for domains in negatively curved manifolds*, *Computational Mathematics and Function Theory* **21**, 797–824 (2021).
- (126) pdf M. van den Berg, T. Kappeler, *Localization for the torsion function and the strong Hardy inequality*, *Mathematika* **67**, 514–531 (2021).
- (125) pdf M. van den Berg, D. Bucur, T. Kappeler, *On efficiency and localisation for the torsion function*, *Potential Analysis*, to appear.
- (124) pdf M. van den Berg, G. Buttazzo, *On capacity and torsional rigidity*, *Bulletin of the London Mathematical Society* **53**, 347–359 (2021).
- (123) pdf M. van den Berg, T. Carroll, *On the torsion function with mixed boundary conditions*, *Potential Analysis* **55**, 277–284 (2021).
- (122) pdf M. van den Berg, G. Buttazzo, A. Pratelli, *On relations between principal eigenvalue and torsional rigidity*, *Communications in Contemporary Mathematics* **23**, 2050093 (2021).
- (121) pdf M. van den Berg, F. Della Pietra, G. di Blasio, N. Gavitone, *Efficiency and localisation for the first Dirichlet eigenfunction*, *Journal of Spectral Theory* **11**, 981–1003 (2021).
- (120) pdf M. van den Berg, P. Gilkey, K. Gittins, *Heat flow from polygons*, *Potential Analysis* **53**, 1043–1062 (2020).
- (119) pdf M. van den Berg, V. Ferone, C. Nitsch, C. Trombetti, *On a Pólya functional for rhombi, isosceles triangles, and thinning convex sets*, *Revista Matemática Iberoamericana* **36**, 2091–2105 (2020).
- (118) pdf M. van den Berg, D. Bucur, *Sign changing solutions of Poisson’s equation*, *Proceedings of the London Mathematical Society* **121**, 513–536 (2020).
- (117) pdf M. van den Berg, T. Kappeler, *On the  $L^p$  norm of the torsion function*, *Ricerche di Matematica* **68**, 399–414 (2019).
- (116) pdf M. van den Berg, *Heat content in non-compact Riemannian manifolds*, *Integral Equations and Operator Theory* **90**, 8 (2018).
- (115) pdf M. van den Berg, F. den Hollander, *Torsional rigidity for cylinders with a Brownian fracture*, *Bulletin of the London Mathematical Society* **50**, 321–339 (2018).

- (114) pdf M. van den Berg, E. Bolthausen, F. den Hollander, *Torsional rigidity for regions with a Brownian boundary*, Potential Analysis **48**, 375–403 (2018).
- (113) pdf M. van den Berg, *Spectral bounds for the torsion function*, Integral Equations and Operator Theory **88**, 387–400 (2017).
- (112) pdf M. van den Berg, K. Gittins, *Minimising Dirichlet eigenvalues on cuboids of unit measure*, Mathematika **63**, 469–482 (2017).
- (111) pdf M. van den Berg, K. Gittins, *On the number of Courant-sharp Dirichlet eigenvalues*, Journal of Spectral Theory **6**, 735–745 (2016).
- (110) pdf M. van den Berg, V. Ferone, C. Nitsch, C. Trombetti, *On Pólya’s inequality for torsional rigidity and first Dirichlet eigenvalue*, Integral Equations and Operator Theory **86**, 579–600 (2016).
- (109) pdf M. van den Berg, D. Bucur, K. Gittins, *Maximising Neumann eigenvalues on rectangles*, Bulletin of the London Mathematical Society **48**, 877–894 (2016).
- (108) pdf M. van den Berg, K. Gittins, *On the heat content of a polygon*, Journal of Geometric Analysis, Journal of Geometric Analysis **26**, 2231–2264 (2016).
- (107) pdf M. van den Berg, G. Buttazzo, B. Velichkov, *Optimization problems involving the first Dirichlet eigenvalue and the torsional rigidity*, in New Trends in Shape Optimization, Int. Series Numerical Math. Eds. A. Pratelli, G. Leugering (Birkhäuser) **166**, 19–41 (2016).
- (106) pdf M. van den Berg, R. Hempel, J. Voigt,  *$L_1$ -Estimates for eigenfunctions of the Dirichlet Laplacian*, Journal of Spectral Theory **5**, 829–857 (2015).
- (105) pdf M. van den Berg, P. Gilkey, *Heat flow out of a compact manifold*, Journal of Geometric Analysis **25**, 1576–1601 (2015).
- (104) pdf M. van den Berg, K. Gittins, *Uniform bounds for the heat content of open sets in Euclidean space*, Differential Geometry and its Applications **40**, 67–85 (2015).
- (103) pdf M. van den Berg, *On the minimization of Dirichlet eigenvalues*, Bulletin of the London Mathematical Society **47**, 143–155 (2015).
- (102) pdf M. van den Berg, P. Gilkey, *Heat content with singular initial temperature and singular specific heat*, Potential Analysis **42**, 1–38 (2015).
- (101) pdf M. van den Berg, E. B. Dryden, T. Kappeler, *Isospectrality and heat content*, Bulletin of the London Mathematical Society **46**, 793–808 (2014).
- (100) pdf M. van den Berg, E. Bolthausen, F. den Hollander, *Heat content and inradius for regions with a Brownian boundary*, Potential Analysis **41**, 501–515 (2014).

- (99) pdf M. van den Berg, D. Bucur, *On the torsion function with Robin or Dirichlet boundary conditions*, Journal of Functional Analysis **266**, 1647–1666 (2014).
- (98) pdf M. van den Berg, P. Gilkey, H. Kang, *Neumann heat content asymptotics with singular initial temperature and singular specific heat*, Journal of Fixed Point Theory and Applications **14**, 267–298 (2013).
- (97) pdf M. van den Berg, *Heat flow and perimeter in  $\mathbb{R}^m$* , Potential Analysis **39**, 369–387 (2013).
- (96) pdf M. van den Berg, *On Rayleigh’s formula for the first Dirichlet eigenvalue of a radial perturbation of a ball*, Journal of Geometric Analysis **23**, 1427–1440 (2013).
- (95) pdf M. van den Berg, M. Iversen, *On the minimization of Dirichlet eigenvalues of the Laplace operator*, Journal of Geometric Analysis **23**, 660–676 (2013).
- (94) pdf M. van den Berg, P. Gilkey, *Heat content asymptotics with singular data*, Journal of Physics A: Math. Theor. **45**, 374027 (2012).
- (93) pdf M. van den Berg, P. Gilkey, A. Grigor’yan, K. Kirsten, *Hardy inequality and heat semigroup estimates for Riemannian manifolds with singular data*, Communications in Partial Differential Equations **37**, 885–900 (2012).
- (92) pdf M. van den Berg, *Estimates for the torsion function and Sobolev constants*, Potential Analysis **36**, 607–616 (2012).
- (91) pdf M. van den Berg, P. Gilkey, K. Kirsten, *Heat trace asymptotics with singular weight functions II*, Journal of Geometric Analysis **21**, 870–901 (2011).
- (90) pdf M. van den Berg, P. Gilkey, K. Kirsten, *Growth of heat trace and heat content asymptotic coefficients*, Journal of Functional Analysis **261**, 2293–2322 (2011).
- (89) pdf M. van den Berg, *On the volume of the intersection of two independent Wiener sausages*, Potential Analysis **34**, 57–79 (2011).
- (88) pdf M. van den Berg, *On the volume of intersection of three independent Wiener sausages*, Annales de L’Institut Henri Poincaré, B. Probabilités et Statistiques **46**, 313–337 (2010).
- (87) pdf M. van den Berg, T. Carroll, *Hardy inequality and  $L^p$  estimates for the torsion function*, Bulletin of the London Mathematical Society **41**, 980–986 (2009).
- (86) pdf M. van den Berg, P. Gilkey, K. Kirsten, R. Seeley, *Heat trace asymptotics with singular weight functions*, Communications in Analysis and Geometry **17**, 529–563 (2009).
- (85) pdf M. van den Berg, *Hardy inequality and weighted heat trace*, Potential Analysis **30**, 201–209 (2009).

- (84) pdf M. van den Berg, P. B. Gilkey, R. Seeley, *Heat content asymptotics with singular initial temperature distributions*, Journal of Functional Analysis **254**, 3093–3122 (2008).
- (83) pdf M. van den Berg, *Heat flow and Hardy inequality in complete Riemannian manifolds with singular initial conditions*, Journal of Functional Analysis **250**, 114–131 (2007).
- (82) pdf M. van den Berg, P. Gilkey, *Expected volume of intersection of pinned Wiener sausages and heat kernel norms on compact Riemannian manifolds with boundary*, Potential Analysis **27**, 301–312 (2007).
- (81) pdf M. van den Berg, A. Dall’Acqua, G. H. Sweers, *Estimates for the expected lifetime of conditioned Brownian motion*, Proceedings of the Royal Society of Edinburgh **137A**, 1091–1099 (2007).
- (80) pdf M. van den Berg, P. Gilkey, K. Kirsten, V. A. Kozlov, *Heat content asymptotics for Riemannian manifolds with Zarembo boundary conditions*, Potential Analysis **26**, 225–254 (2007).
- (79) pdf M. van den Berg, *Heat flow, Brownian motion and Newtonian capacity*, Annales de L’Institut Henri Poincaré, B. Probabilités et Statistiques **43**, 193–214 (2007).
- (78) pdf M. van den Berg, *Heat content and Hardy inequality for complete Riemannian manifolds*, Journal of Functional Analysis **233**, 478–493 (2006).
- (77) pdf M. van den Berg, E. Bolthausen, F. den Hollander, *Brownian survival among Poissonian traps with random shapes at critical intensity*, Probability Theory and Related Fields **132**, 163–202 (2005).
- (76) pdf M. van den Berg, *Exit and return of a simple random walk*, Potential Analysis **23**, 45–53 (2005).
- (75) pdf M. van den Berg, *On the expected volume of intersection of independent Wiener sausages and the asymptotic behaviour of some related integrals*, Journal of Functional Analysis **222**, 114–128 (2005).
- (74) pdf M. van den Berg, P. B. Gilkey, *Heat content and a Hardy inequality for complete Riemannian manifolds*, Bulletin of the London Mathematical Society **36**, 577–586 (2004).
- (73) pdf M. van den Berg, E. Bolthausen, *Area versus capacity and solidification in the crushed ice model*, Probability Theory and Related Fields **130**, 69–108 (2004).
- (72) pdf M. van den Berg, E. Bolthausen, F. den Hollander, *On the volume of the intersection of two Wiener sausages*, Annals of Mathematics **159**, 741–782 (2004).
- (71) pdf M. van den Berg, *Asymptotics of the heat exchange*, Journal of Functional Analysis **206**, 379–390 (2004).
- (70) pdf M. van den Berg, *Subexponential behaviour of the Dirichlet heat kernel*, Journal of Functional Analysis **198**, 28–42 (2003).

- (69) pdf M. van den Berg, *Heat content of a Riemannian manifold with a perfect conducting boundary*, Potential Analysis **19**, 89–98 (2003).
- (68) pdf M. van den Berg, R. Bañuelos, T. Carroll, *Torsional rigidity and expected lifetime of Brownian motion*, Journal of the London Mathematical Society (2) **66**, 499–512 (2002).
- (67) pdf M. van den Berg, *Area versus capacity and independence in the crushed ice model*, Journal of Functional Analysis **189**, 242–266 (2002).
- (66) pdf M. van den Berg, *A vanishing theorem for the heat content of a Riemannian manifold*, Bulletin of the London Mathematical Society **33**, 743–748 (2001).
- (65) pdf M. van den Berg, M. Lianantonakis, *Asymptotics for the spectrum of the Dirichlet Laplacian on horn-shaped regions*, Indiana University Mathematics Journal **50**, 299–333 (2001).
- (64) pdf M. van den Berg, E. Bolthausen, F. den Hollander, *Moderate deviations for the volume of the Wiener sausage*, Annals of Mathematics **153**, 355–406 (2001).
- (63) pdf M. van den Berg, P. Gilkey, *Heat content asymptotics with inhomogeneous Neumann and Dirichlet boundary conditions*, Potential Analysis **14**, 269–274 (2001).
- (62) pdf M. van den Berg, *On the  $L^\infty$  Norm of the first eigenfunction of the Dirichlet Laplacian*, Potential Analysis **13**, 361–366 (2000).
- (61) pdf M. van den Berg, *Renewal equation for the heat equation of an arithmetic von Koch snowflake*, in Infinite Dimensional Stochastic Analysis, Koninklijke Nederlandse Akademie van Wetenschappen, Verhandelingen, Afd. Natuurkunde, Eerste Reeks **52**, 25–37 (2000).
- (60) pdf M. van den Berg, *Heat equation on the arithmetic von Koch snowflake*, Probability Theory and Related Fields **118**, 17–36 (2000).
- (59) pdf M. van den Berg, P. Gilkey, *The heat content asymptotics of a time-dependent process*, Proceedings of the Royal Society of Edinburgh **130A**, 307–312 (2000).
- (58) pdf M. van den Berg, E. Bolthausen, *Estimates for Dirichlet eigenfunctions*, Journal of the London Mathematical Society (2) **59**, 607–619 (1999).
- (57) pdf M. van den Berg, S. P. Watson, *Asymptotics for the spectral heat function and bounds for integrals of Dirichlet eigenfunctions*, Proceedings of the Royal Society of Edinburgh **129A**, 841–854 (1999).
- (56) pdf M. van den Berg, P. B. Gilkey, *The heat equation with inhomogeneous Dirichlet boundary conditions*, Communications in Analysis and Geometry **7**, 279–294 (1999).
- (55) pdf M. van den Berg, F. den Hollander, *Asymptotics for the heat content of a planar region with a fractal polygonal boundary*, Proceedings of the London Mathematical Society (3) **78**, 627–661 (1999).

- (54) pdf M. van den Berg, *Heat content asymptotics for planar regions with cusps*, Journal of the London Mathematical Society (2) **57**, 677–693 (1998).
- (53) pdf M. van den Berg, P. B. Gilkey, *A comparison estimate for the heat equation with an application to the heat content of the  $s$ -adic von Koch snowflake*, Bulletin of the London Mathematical Society **30**, 404–412 (1998).
- (52) pdf M. van den Berg, E. Bolthausen, *On the expected volume of the Wiener sausage for a Brownian bridge*, Mathematische Zeitschrift **224**, 33–48 (1997).
- (51) pdf M. van den Berg, M. Levitin, *Functions of Weierstrass type and spectral asymptotics for iterated sets*, Quarterly Journal of Mathematics Oxford (2) **47**, 493–509, (1996).
- (50) pdf M. van den Berg, R. Bañuelos, *Dirichlet eigenfunctions for horn-shaped regions and Laplacians on cross sections*, Journal of the London Mathematical Society (2) **53**, 503–511 (1996).
- (49) pdf M. van den Berg, P. B. Gilkey, *Heat invariants for odd-dimensional hemispheres*, Proceedings of the Royal Society of Edinburgh **126A**, 187–193 (1996).
- (48) pdf M. van den Berg, *Heat content asymptotics for some open sets with a fractal boundary*, Proceedings of Symposia in Pure Mathematics **57**, 11–22 (1995).
- (47) pdf M. van den Berg, *Heat content and Brownian motion for some regions with a fractal boundary*, Probability Theory and Related Fields **100**, 439–456 (1994).
- (46) pdf M. van den Berg, E. Bolthausen, *Asymptotics of the generating function for the volume of the Wiener sausage*, Probability Theory and Related Fields **99**, 389–397 (1994).
- (45) pdf M. van den Berg, J.-F. Le Gall, *Mean curvature and the heat equation*, Mathematische Zeitschrift **215**, 437–464 (1994).
- (44) pdf M. van den Berg, P. B. Gilkey, *Heat content asymptotics of a Riemannian manifold with boundary*, Journal of Functional Analysis **120**, 48–71 (1994).
- (43) pdf M. van den Berg, S. Desjardins, P. Gilkey, *Functoriality and heat content asymptotics for operators of Laplace type*, Topological Methods in Nonlinear Analysis **2**, 147–162 (1993).
- (42) pdf M. van den Berg, S. Desjardins, P. B. Gilkey, *Heat content asymptotics of Riemannian manifolds*, Proceedings 5th International Conference on Differential Geometry and Its Applications, Mathematical Publications Silesian University at Opava **1**, 61–64 (1993).
- (41) pdf M. van den Berg, T. C. Dorlas, V. B. Priezhev, *The Boson gas on a Cayley tree*, Journal of Statistical Physics **69**, 307–328 (1992).

- (40) pdf M. van den Berg, *On the ratio of odd and even spectral counting functions*, Operator Theory: Advances and Applications **57**, 321–328 (1992).
- (39) pdf M. van den Berg, *A gaussian lower bound for the Dirichlet heat kernel*, Bulletin of the London Mathematical Society **24**, 475–477 (1992).
- (38) pdf M. van den Berg, *On the spectral counting function for the Dirichlet Laplacian*, Journal of Functional Analysis **107**, 352–361 (1992).
- (37) pdf M. van den Berg, *Dirichlet-Neumann bracketing for horn-shaped regions*, Journal of Functional Analysis **104**, 110–120 (1992).
- (36) pdf M. van den Berg, *On the trace of the difference of Schrödinger heat semigroups*, Proceedings of the Royal Society of Edinburgh **119A**, 169–175 (1991).
- (35) pdf M. van den Berg, *Heat equation on a hemisphere*, Proceedings of the Royal Society of Edinburgh **118A**, 5–12 (1991).
- (34) pdf M. van den Berg, B. Tóth, *Exponential estimates for the Wiener sausage*, Probability Theory and Related Fields **88**, 249–259, (1991).
- (33) pdf M. van den Berg, S. Srisatkunarah, *Heat flow and Brownian motion for a region in  $\mathbb{R}^2$  with a polygonal boundary*, Probability Theory and Related Fields **86**, 41–52 (1990).
- (32) pdf M. van den Berg, *Large time asymptotics of the heat flow*, Quarterly Journal of Mathematics Oxford (2) **41**, 245–253 (1990).
- (31) pdf M. van den Berg, T. C. Dorlas, J. T. Lewis, J. V. Pulè, *The pressure in the Huang-Yang-Luttinger model of an interacting boson gas*, Communications in Mathematical Physics **128**, 231–245 (1990).
- (30) pdf M. van den Berg, *Gaussian bounds for the Dirichlet heat kernel*, Journal of Functional Analysis **88**, 267–278 (1990).
- (29) pdf M. van den Berg, T. C. Dorlas, J. T. Lewis, J. V. Pulè, *A perturbed mean field model of an interacting boson gas and the large deviation principle*, Communications in Mathematical Physics **127**, 41–69 (1990).
- (28) pdf M. van den Berg, E. B. Davies, *Heat flow out of regions in  $\mathbb{R}^m$* , Mathematische Zeitschrift **202**, 463–482 (1989).
- (27) pdf M. van den Berg, *Heat equation and the principle of not feeling the boundary*, Proceedings of the Royal Society of Edinburgh **112A**, 257–262 (1989).
- (26) pdf M. van den Berg, J. T. Lewis, J. V. Pulé, *Large deviations and the boson gas*, Springer Lecture Notes in Mathematics **1325**, 24–39 (1988).
- (25) pdf M. van den Berg, J. T. Lewis, *Limit theorems for stochastic processes associated with a boson gas*, Springer Lecture Notes in Mathematics **1325**, 16–23 (1988).

- (24) pdf M. van den Berg, J. T. Lewis, J. V. Pulé, *The large deviation principle and some models of an interacting boson gas*, Communications in Mathematical Physics **118**, 61–85 (1988).
- (23) pdf M. van den Berg, S. Srisatkunarah, *Heat equation for a region in  $\mathbb{R}^2$  with a polygonal boundary*, Journal of the London Mathematical Society (2) **37**, 119–127 (1988).
- (22) pdf M. van den Berg, *On traces associated with the Dirichlet Laplacian*, Journal of Mathematical Analysis and Applications **126**, 176–185 (1987).
- (21) pdf M. van den Berg, J. T. Lewis, *On the asymptotics of a Wiener integral*, Proceedings of the Royal Society of Edinburgh **105A**, 195–198 (1987).
- (20) pdf M. van den Berg, *On the asymptotics of the heat equation and bounds on traces associated with the Dirichlet Laplacian*, Journal of Functional Analysis **71**, 279–293 (1987).
- (19) pdf M. van den Berg, J. T. Lewis, M. Lunn, *On the general theory of Bose-Einstein condensation and the state of the free boson gas*, Helvetica Physica Acta **59**, 1289–1310 (1986).
- (18) pdf M. van den Berg, J. T. Lewis, J. V. Pulé, *A general theory of Bose-Einstein condensation*, Helvetica Physica Acta **59**, 1271–1288 (1986).
- (17) pdf M. van den Berg, *On a classical two-component plasma with a logarithmic interaction*, Proceedings of The Royal Society of Edinburgh **101A**, 187–192 (1985).
- (16) pdf M. van den Berg, J. T. Lewis, *Brownian motion on a hypersurface*, Bulletin of the London Mathematical Society **17**, 144–150 (1985).
- (15) pdf M. van den Berg, J. T. Lewis, Ph. de Smedt, *Condensation in the imperfect boson gas*, Journal of Statistical Physics **37**, 697–707 (1984).
- (14) pdf M. van den Berg, *On the spectrum of the Dirichlet Laplacian for horn-shaped regions in  $R^n$  with infinite volume*, Journal of Functional Analysis **58**, 150–156 (1984).
- (13) pdf M. van den Berg, *A uniform bound on trace ( $e^{t\Delta}$ ) for convex regions in  $R^n$  with smooth boundaries*, Communications in Mathematical Physics **92**, 525–530 (1984).
- (12) pdf M. van den Berg, J. L. van Hemmen, *On a neutral plasma with quadratic interactions*, Journal of Physics A: Math. Gen. **17**, 169–174 (1984).
- (11) pdf M. van den Berg, *On finite volume corrections to the equation of state of a free Bose gas*, Helvetica Physica Acta **56**, 1151–1157 (1983).
- (10) pdf M. van den Berg, *On condensation in the free-boson gas and the spectrum of the Laplacian*, Journal of Statistical Physics **31**, 623–637 (1983).
- (9) pdf M. van den Berg, J. T. Lewis, *On generalized condensation in the free boson gas*, Physica **110A**, 550–564 (1982).



- (8) pdf M. van den Berg, *On boson condensation into an infinite number of low-lying levels*, Journal of Mathematical Physics **23**, 1159–1161 (1982).
- (7) pdf M. van den Berg, *On non-analytic thermodynamic behaviour of the classical linear chain*, Physica **108A**, 169–179 (1981).
- (6) pdf M. van den Berg, J. T. Lewis, *On the free boson gas in a weak external potential*, Communications in Mathematical Physics **81**, 475–494 (1981).
- (5) pdf M. van den Berg, *Bounds on Green's functions of second-order differential equations*, Journal of Mathematical Physics **22**, 2452–2455 (1981).
- (4) pdf M. van den Berg, *On a classical two-component plasma with a quadratic interaction*, Physics Letters **82A**, 241–243 (1981).
- (3) pdf M. van den Berg, *The Casimir effect in two dimensions*, Physics Letters **81A**, 219–222 (1981).
- (2) pdf M. van den Berg, *On the free boson gas in a weak external potential*, Physics Letters **78A**, 88–90 (1980).
- (1) pdf M. van den Berg, Th. Niemeijer, *The zero-distribution of the great partition function in the complex fugacity plane of gases of point particles with logarithmic interaction*, Physica **85A**, 186–192 (1976).