References

1. Adams, R.A.: Sobolev Spaces. Academic Press, New York (1975)
2. Adimurthi, Tintarev, K.: Hardy inequalities for weighted Dirac operator. Ann. Mat. Pura Appl. **189**, 241–251 (2010)
3. Aharonov, Y., Bohm, D.: Significance of electromagnetic potentials in quantum theory. Phys. Rev. **115**, 485–491 (1959)
4. Aharonov, Y., Bohm, D.: Further considerations on electromagnetic potentials in quantum theory. Phys. Rev. **123**, 1511–1524 (1961)
5. Ahlfors, L.V.: Complex Analysis. An Introduction to the Theory of Analytic Functions of One Complex Variable. International Series in Pure and Applied Mathematics, 3rd edn. McGraw-Hill Book Co., New York (1978)
6. Allegretto, W.: Nonoscillation theory of elliptic equations of order 2*n*. Pac. J. Math. **64**(1), 1–16 (1976)
7. Ancona, A.: On strong barriers and an inequality of Hardy for domains in $\mathbb{R}^2$. J. Lond. Math. Soc. **34**, 274–290 (1986)
8. Armitage, D.H., Kuran, Ü.: The convexity of a domain and the superharmonicity of the signed distance function. Proc. Am. Math. Soc. **93**(4), 598–600 (1985)
9. Aubin, T.: Problemes isoperimetriques et espaces de Sobolev. J. Differ. Geom. **11**, 573–598 (1976)
10. Avkhadiev, F.G.: Hardy type inequalities in higher dimensions with explicit estimate of constants. Lobachevskii J. Math. **21**, 3–31 (2006). http://ljm.ksu.ru
11. Avkhadiev, F.G., Laptev, A.: Hardy inequalities for non-convex domains. In: Around the Research of Vladimir Maz'ya. I, International Mathematical Series (N. Y.), vol. 11, pp. 1–12. Springer, New York (2010)
12. Avkhadiev, F.G., Wirths, K.: Unified Poincaré and Hardy inequalities with sharp constants for convex domains. Z. Angew. Math. Mech. **87**(8–9), 632–642 (2007)
13. Avron, J., Herbst, I., Simon, B.: Schrödinger operators with magnetic fields. I. General Interactions. Duke Math. J. **45**(4), 847–883 (1978)
14. Balinsky, A.A.: Hardy type inequalities for Aharonov-Bohm magnetic potentials with multiple singularities, Math. Res. Lett. **10**, 169–176 (2003)
15. Balinsky, A., Evans, W.D.: On the zero modes of Pauli operators. J. Funct. Anal. **179**, 120–135 (2001)
16. Balinsky, A., Evans, W.D.: Some recent results on Hardy-type inequalities. Appl. Math. Inf. Sci. **4**(2), 191–208 (2010)
17. Balinsky, A., Evans, W.D., Hundertmark, D., Lewis, R.T.: On inequalities of Hardy-Sobolev type. Banach J. Math. Anal. **2**(2), 94–106 (2008)

A.A. Balinsky et al., *The Analysis and Geometry of Hardy's Inequality*,
Universitext, DOI 10.1007/978-3-319-22870-9

18. Balinsky, A., Evans, W.D., Lewis, R.T.: On the number of negative eigenvalues of Schrodinger operators with an Aharonov-Bohm magnetic field. Proc. R. Soc. Lond. **457**, 2481–2489 (2001)
19. Balinsky, A., Evans, W.D., Lewis, R.T.: Sobolev, Hardy and CLR inequalities associated with Pauli operators in $\mathbb{R}^3$. J. Phys. A **34**(5), L19–L23 (2001)
20. Balinsky, A., Evans, W.D., Lewis, R.T.: Hardy's inequality and curvature. J. Funct. Anal. **262**, 648–666 (2012) [Available online 13 October 2011]
21. Balinsky, A., Evans, W.D., Umeda, T.: The Dirac-Hardy and Dirac-Sobolev inequalities in L^1. Publ. Res. Inst. Math. Sci. **47**(3), 791–801 (2011)
22. Balinsky, A., Laptev, A., Sobolev, A.: Generalized Hardy inequality for the magnetic Dirichlet forms. J. Stat. Phys. **116**(114), 507–521 (2004)
23. Barbatis, G., Filippas, S., Tertikas, A.: A unified approach to improved L^p Hardy inequalities with best constants. Trans. Am. Math. Soc. **356**(6), 2169–2196 (2004)
24. Bargmann, V.: On the number of bound states in a central field of force. Proc. Nat. Acad. Sci. USA **38**, 961–966 (1952)
25. Batelaan, H., Tonomura, A.: The Aharonov–Bohm effects: variations on a subtle theme. Phys. Today **62**(9), 38–43 (2009)
26. Bateman, H.: Higher Transcendental Functions, vol. I. McGraw-Hill, New York (1953)
27. Benguria, R.D., Van Den Bosch, H.: A criterion for the existence of zero modes for the Pauli operator with fastly decaying fields. J. Math. Phys. **56**, 052104 (2015)
28. Benguria, R.D., Frank, R.L., Loss, M.: The sharp constant in the Hardy-Sobolev-Maz'ya inequality in the three dimensional upper half-space. Math. Res. Lett. **15**(4), 613–622 (2008)
29. Bennett, D.M.: An extension of Rellich's inequality. Proc. Am. Math. Soc. **106**, 987–993 (1989)
30. Brezis, H., Marcus, M.: Hardy's inequalities revisited. Dedicated to Ennio De Giorgi. Ann. Scuola Norm. Sup. Pisa Cl. Sci. **25**(4), 217–237 (1997)
31. Brezis, H., Vázquez, J.V.: Blow-up solutions of some nonlinear elliptic problems. Revista Matemática de la Universidad Complutense de Madrid **10**(2), 443–469 (1997)
32. Brown, R.C., Edmunds, D.D., Rákosník, J.: Remarks on inequalities of Poincaré type. Czech. Math. J. **45**, 351–377 (1995)
33. Bunt, L.H.N.: Bijdrage tot de Theorie der convexe Puntverzamelingen. Thesis, University of Groningen, Amsterdam (1934)
34. Caldiroli, P., Musina, R.: Rellich inequality with weights (English summary). Calc. Var. PDE. **45**(1–2), 147–164 (2012)
35. Cannarsa, P., Sinestrari, C.: Semiconcave functions, Hamilton Jacobi equations and optimal control. In: Progress in Nonlinear Differential equations and their Applications, vol. 58, Birkhäuser, Boston (2004)
36. Chambers, R.G.: Shift of an electron interference pattern by enclosed magnetic flux. Phys. Rev. Lett. **5**(3), (1960)
37. Chisholm, R.S., Everitt, W.N.: On bounded integral operators in the space of square integrable functions. Proc. R. Soc. Edinb. A **69**, 199–204 (1971)
38. Conlon, J.P.: A new proof of the Cwikel-Lieb-Rosenbljum bound. Rocky Mt. J.Math. 117–122 (1985)
39. Cwikel, M.: Weak type estimates for singular values and the number of bound states of Schrödinger operators. Ann. Math. **106**, 93–100 (1977)
40. Davies, E.B.: One-Parameter Semigroups. Academic, London (1980)
41. Davies, E.B.: Some norm bounds and quadratic form inequalities for Schrödinger operators (II). J. Oper. Theory **12**, 177–196 (1984)
42. Davies, E.B.: Heat Kernels and Spectral Theory. Cambridge Tracts in Mathematics, vol. 92. Cambridge University Press, Cambridge (1989)
43. Davies, E.B.: Spectral Theory and Differential Operators. Cambridge Studies in Advanced Mathematics, vol. 42. Cambridge University Press, Cambridge (1995)
44. Davies, E.B.: The Hardy constant. Q. J. Math. Oxf. (2) **46**, 417–431 (1995)

45. Davies, E.B., Hinz, A.M.: Explicit constants for Rellich inequalities in $L_p(\Omega)$. Math. Z. **227**(3), 511–523 (1998)
46. Dolbeault, J., Esteban, M.J., Séré, E.: On the eigenvalues of operators with gaps. Application to Dirac operators. J. Funct. Anal. **174**(1), 208–226 (2000)
47. Dolbeault, J., Esteban, M.J., Loss, M., Vega, L.: An analytic proof of Hardy-like inequalities related to the Dirac operator. J. Funct. Anal. **216**, 1–21 (2004)
48. Edmunds, D.E., Evans, W.D.: Spectral Theory and Differential Operators. Oxford University Press, Oxford (1987) [OX2 GDP]
49. Edmunds, D.E., Evans, W.D.: Hardy Operators, Function Spaces, and Embeddings. Springer Monographs in Mathematics. Springer, Berlin/Heidelberg/New York (2004)
50. Ehrenberg, W., Siday, R.: The refractive index in electron optics and the principles of dynamics. Proc. Phys. Soc. B **62**, 821 (1949)
51. Esteban, M.J., Loss, M.: Self-adjointness of Dirac operators via Hardy-Dirac inequalities. J. Math. Phys. **48**, 112107 (2007)
52. Evans, L.C., Gariepy, R.F.: Measure Theory and Fine Properties of Functions. Studies in Advanced Mathematics. CRC, Boca Raton/London/New York/Washington, DC (1992)
53. Evans, W.D., Harris, D.J.: Sobolev embeddings for generalized ridged domains, Proc. Lond. Math. Soc. **54**, 141–175 (1987)
54. Evans, W.D., Lewis, R.T.: On the Rellich inequality with magnetic potentials. Math. Z. **251**, 267–284 (2005)
55. Evans, W.D., Lewis, R.T.: Counting eigenvalues of biharmonic operators with magnetic fields. Math. Nachrichten **278**(12–13), 1524–1537 (2005)
56. Evans, W.D., Lewis, R.T.: Hardy and Rellich inequalities with remainders. J. Math. Inequal. **1**(4), 473–490 (2007)
57. Falconer, K.: Fractal Geometry: Mathematical Foundations and Applications. Wiley, New York (2007)
58. Federer, H.: Curvature measures. Trans. Am. Math. Soc. **93**(3), 418–491 (1959)
59. Federer, H., Fleming, W.: Normal and integral currents. Ann. Math. **72**, 458–520 (1960)
60. Filippas, S., Maz'ya, V., Tertikas, A.: On a question of Brezis and Marcus. Calc. Var. **25**(4), 491–501 (2006)
61. Filippas, S., Maz'ya, V., Tertikas, A.: Critical Hardy-Sobolev inequalities. J. Math. Pures Appl. **87**, 37–56 (2007)
62. Frank, R.L., Loss, M.: Hardy-Sobolev-Maz'ya inequalities for arbitrary domains. J. Math. Pures Appl. **97**, 39–54 (2012)
63. Frank, R.L., Lieb, E., Seiringer, R.: Hardy-Lieb-Thirring inequalities for fractional Schrödinger operators. J. Am. Math. Soc., **21**, 925–950 (2008)
64. Frank, R.L., Lieb, E.H., Seiringer, R.: Equivalence of Sobolev inequalities and Lieb-Thirring inequalities. In: Exner, P. (ed.) Proceedings of the XVIth International Congress on Mathematical Physics, Prague, 2009, pp. 523–535, World Scientific (2010)
65. Fremlin, D.H.: Skeletons and central sets. Proc. Lond. Math. Soc. **74**, 701–720 (1997)
66. Frohlich, J., Lieb, E., Loss, M.: Stability of Coulomb systems with magnetic fields I. The one-electron atom. Commun. Math. Phys. **104**(2), 251–270 (1986)
67. Gagliardo, E.: Proprietaàdi alcune classi di funzionidi piu variabili. Ricerche Mat. **7**, 102–137 (1958)
68. Gilbarg, D., Trudinger, N.S.: Elliptic Partial Differential Equations of Second Order. Springer Classics in Mathematics. Springer, Berlin/Heidelberg/New York (2001). Reprint of the 1998 Edition
69. Gkikas, K.T.: Hardy-Sobolev inequalities in unbounded domains and heat kernel estimates. J. Funct. Anal. **264**(3), 837–893 (2013)
70. Hadwiger, H.: Vorlesungen über Inhalt, Oberfläche und Isoperimetrie. Springer, Berlin/Göttingen/Heidelberg (1957)
71. Hajłasz, P.: Pointwise Hardy inequalities. Proc. Am. Math. Soc. **127**(2), 417–423 (1999)
72. Hardy, G.H.: Note on a theorem of Hilbert. Math. Zeit. **6**, 314–317 (1920)
73. Hardy, G.H.: An inequality between integrals. Messenger Math. **54**, 150–156 (1925)

74. Hardy, G.H.: A Mathematician's Apology. Cambridge University Press, Cambridge (1992). With a foreword by C.P. Snow. Reprint of the 1967 edition
75. Hardy, G.H., Littlewood, J.E., Pólya, G.: Inequalities, 2nd edn. Cambridge University Press, Cambridge (1952)
76. Helffer, B., Mohamed, A.: Caractérisation du spectre essentiel de l'opérateur de Schrödinger avec un champ magnétique. Ann. Inst. Fourier **38**(2), 95–112 (1988)
77. Herbst, I.: Spectral theory of the operator $(p^2 + m^2)^{1/2} - ze^2/r$. Commun. Math. Phys. **53**(3), 285–294 (1977)
78. Hoffmann-Ostenhof, M., Hoffmann-Ostenhof, T., Laptev, A.: A geometrical version of Hardy's inequality. J. Funct. Anal. **189**, 539–548 (2002)
79. Hörmander, L.: The Analysis of Linear Partial Differential Operators I. Springer, Berlin/Heidelberg (1983)
80. Hörmander, L.: Notions of Convexity. Birkhäuser, Boston/Basel/Berlin (1994)
81. Itoh, J.-I., Tanaka, M.: The Lipschitz continuity of the distance function to the cut locus. Trans. Am. Math. Soc. **353**(1), 21–40 (2001)
82. Kalf, H.: A characterization of the Friedrichs extension of Sturm-Liouville operators. J. Lond. Math. Soc. **17**, 511–521 (1978)
83. Kato, T.: Perturbation Theory for Linear Operators, 2nd edn. Springer, Berlin/Heidelberg/New York (1976)
84. Kato, T.: Schrödinger operators with singular potentials. Isr. J. Math. **13**(1–2), 135–148 (1972)
85. Kinnunen, J., Martio, O.: Hardy's inequality for Sobolev functions. Math. Res. Lett. **4**, 489–500 (1997)
86. Kinnunen, J., Korte, R.: Characterizations of Hardy's Inequality. Around the research of Vladimir Mazy'a I, pp. 239–254. Springer, New York (2010)
87. Koskela, P., Zhong, X.: Hardy's inequality and the boundary size. Proc. Am. Math. Soc. **131**(4), 1151–1158 (2002)
88. Krantz, S.: Complex Analysis: The Geometric Viewpoint. Carus Mathematical Monographs, vol. 23. Mathematical Association of America, Washington, DC (1990)
89. Kregar, A.: Aharonov-Bohm Effect, University of Ljubljana, Department of Physics, March 2011
90. Kreyszig, E.: Differential Geometry. Dover, New York (1991)
91. Kufner, A., Maligranda, L., Persson, L.-E.: The Hardy Inequality – About Its History and Some Related Results. Vydavatelský servis, Pilsen (2007)
92. Kovalenko, V.F., Perelmuter, M.A., Semenov, Ya.A.: Schrödinger operators with $L_w^{1/2}(R^l)$ potentials. J. Math. Phys. **22**(5), 1033–1044 (1981)
93. Kuratowski, K.: Topology, vol. II. Academic, New York (1968)
94. Landau, E.: A note on a theorem concerning series of positive terms. J. Lond. Math. Soc. **1**, 38–39 (1926)
95. Landau, L.D., Lifshitz, E.M.: Quantum Mechanics (Nonrelativistic Theory). Pergamon, Oxford (1977)
96. Laptev, A.: Spectral inequalities for partial differential equations and their applications. AMS/IP Stud. Adv. Math. **51**, 629–643 (2012)
97. Laptev, A., Netrusov, Yu.: On the negative eigenvalues of a class of Schrödinger operators. Differential Operators and Spectral Theory. Am. Math. Soc. Transl. 2 **189**, 173–186 (1999)
98. Laptev, A., Sobolev, A.V.: Hardy inequalities for simply connected planar domains. Am. Math. Soc. Transl. Ser. 2 **225**, 133–140 (2008)
99. Laptev, A., Weidl, T.: Hardy inequalities for magnetic Dirichlet forms. Oper. Theory: Adv. Appl. **108**, 299–305 (1999)
100. Lehrbäck, J.: Pointwise Hardy inequalities and uniformly fat sets. Proc Am. Math. Soc. **136**(6), 2193–2200 (2008)
101. Lehrbäck, J.: Weighted Hardy inequalities and the size of the boundary. Manuscripts Math. **127**, 249–273 (2008)

102. Lehrbäck, J., Tuominen, H.: A note on the dimensions of Assouad and Aikawa. J. Math. Soc. Jpn. **65.2**, 343–356 (2013)
103. Levin, D., Solomyak, M.: The Rozenbljum-Lieb-Cwikel inequality for Markov generators. J. Anal. Math. **71**, 173–193 (1997)
104. Lewis, J.L.: Uniformly fat sets. Trans. Am. Math. Soc. **308**, 177–196 (1988)
105. Lewis, R.T.: Singular elliptic operators of second order with purely discrete spectra. Trans. Am. Math. Soc. **271**, 653–666 (1982)
106. Lewis, R.T.: Spectral properties of some degenerate elliptic differential operators. In: Operator Theory: Advances and Applications, vol. 219, pp. 139–156. Springer, Basel (2012)
107. Lewis, R.T., Li, J., Li, Y.: A geometric characterization of a sharp Hardy inequality. J. Funct. Anal. **262**(7), 3159–3185 (2012)
108. Li, Y., Nirenberg, L.: The distance to the boundary, Finsler geometry, and the singular set of viscosity solutions of some Hamilton-Jacobi equations. Commun. Pure Appl. Math. **18**(1), 85–146 (2005)
109. Li, P., Yau, S.-T.: On the Schrödinger equation and the eigenvalue problem. Commun. Math. Phys. **88**, 309–318 (1983)
110. Lieb, E.H.: Bounds on the number of eigenvalues of Laplace and Schrödinger operators. Bull. Am. Math. Soc. **82**, 751–753 (1976)
111. Lieb, E.H., Loss, M.: Analysis. Graduate Studies in Mathematics, vol. 14, 2nd edn. American Mathematical Society, Providence (2001)
112. Lieb, E.H., Seiringer, R.: The Stability of Matter in Quantum Mechanics. Cambridge University Press, New York (2010)
113. Luukainen, J.: Assouad dimension: Antifractal metrization, porous sets and homogeneous measures. J. Korean Math. Soc. **1**, 23–76 (1998)
114. MacLaurin, C.: A second letter to Martin Folkes, Esq.; concerning the roots of equations, with the demonstration of other rules in algebra. Philos. Trans. **36**, 59–96 (1729)
115. Mantegazza, C., Mennucci, A.C.: Hamilton-Jacobi equations and distance functions on Riemannian manifolds. Appl. Math. Optim. **47**, 1–25 (2003)
116. Marcus, M., Mizel, V., Pinchover, Y.: On the best constant for Hardy's inequality in $\mathbb{R}^n$. Trans. Am. Math. Soc. **350**(8), 3237–3255 (1998)
117. Matskewich, T., Sobolevskii, P.: The best possible constant in generalized Hardy's inequality for convex domain in $\mathbb{R}^n$. Nonlinear Anal. Theory Methods Appl. **28**(9), 1601–1610 (1997)
118. Maz'ya, V.G.: Classes of domains and embedding theorems for function spaces. Dokl. Akad. Nauk. SSSR **133**, 527–530 (1960). English transl.: Sov. Math. Dokl. **1**, 882–885
119. Maz'ya, V.G.: Sobolev Spaces. Springer, Berlin (1985)
120. Motzkin, T.S.: Sur quelques propriétés charactéristiques des ensembles convexes. Atti Real. Accad. Naz. Lincei Rend. Cl. Sci. Fis. Mat. Natur. Serie VI **21**, 562–567 (1935)
121. Muckenhoupt, B.: Hardy's inequality with weights. Stud. Math. **44**, 31–38 (1972)
122. Nenciu, G., Nenciu, I.: On confining potentials and essential self-adjointness for Schrödinger operators on bounded domains in $\mathbb{R}^n$. Ann. Henri Poincaré **10**, 377–394 (2009)
123. Newton, I.: Sive de compositione et resolutione arithmetica liber. Arithmetica universalis (1707)
124. Nirenberg, L.: On elliptic partial differential equations. Ann. Sc. Norm. Pisa **13**, 1–48 (1959)
125. Okazawa, N.: L^p-theory of Schrödinger operators with strongly singular potentials. Jpn J. Math. **22**(2), 200–239 (1996)
126. Opic, B., Kufner, A.: Hardy-type Inequalities. Pitman Research Notes in Mathematics, Series, vol. 219. Longman Science & Technology, Harlow (1990)
127. Psaradakis, G.: L^1 Hardy inequalities with weights. J. Geom. Anal. **23**(4), 1703–1728 (2013)
128. Rellich, F.: Halbeschränkte Differentialoperatoren höherer Ordnung. In: Gerretsen, J.C.H., de Groot, J. (eds.) Proceedings of the International Congress of Mathematicians 1954, vol. III, pp.243–250. Noordhoff, Groningen (1956)
129. Rellich, F., Berkowitz, J.: Perturbation Theory of Eigenvalue Problems. Gordon and Breach, New York/London/Paris (1969)

130. Rosenberger, R.: A new characterization of the Friedrichs extension of semi-bounded Sturm-Liouville operators. J. Lond. Math. Soc. (2) **31**, 501–510 (1985)
131. Rosenbljum, G.V.: The distribution of the discrete spectrum for singular differential operators. Soviet Math. Dokl. **13**, 245–249 (1972)
132. Schmidt, K.M.: A short proof for Bargmann-type inequalities. R. Soc. Lond. Proc. Ser. A Math. Phys. Eng. Sci. **458**(2027), 2829–2832 (2002)
133. Schmincke, U.-W.: Essential selfadjointness of a Schrödinger operator with strongly singular potential. Math. Z. **124**, 47–50 (1972)
134. Seiringer, R.: Inequalities for Schrödinger operators and applications to the stability of matter problem. Lectures given in Tucson, Arizona, 16–20 March 2009
135. Shen, Zh.: Eigenvalue asymptotics and exponential decay of eigenfunctions of Schrödinger operators with magnetic fields, Trans. Am. Math. Soc. **348**, 4465–4488 (1996)
136. Simon, B.: Essential self-adjointness of Schrödinger operators with singular potentials. Rat. Anal. Mech. **52**(1), 44–48 (1973)
137. Sobolev, S.L.: On a theorem of functional analysis. Mat. Sb. Am. Math. Soc. Transl. II Ser. **34**, 39–68 (1938); **46**, 471–497 (1963)
138. Solomyak, M.Z.: A remark on the Hardy inequalities. Integr. Equ. Oper. Theory **19**, 120–124 (1994)
139. Stein, E.M.: Singular Integrals and Differentiability properties of Functions. Princeton University Press, Princeton (1970)
140. Talenti, G.: Best constant in Sobolev inequality. Ann. Mat. Pura Appl. **110**, 353–372 (1976)
141. Thaller, B.: The Dirac Equation. Springer, Berlin (1992)
142. Thomas, J.C.: Some Problems Associated with Sum and Integral Inequalities. Ph.D. thesis, Cardiff University, Wales (2007)
143. Thorpe, J.: Elementary Topics in Differential Geometry. Undergraduate Texts in Mathematics, Springer, New York (1994)
144. Tidblom, J.: A geometrical version of Hardy's inequality for $W_0^{1,p}(\Omega)$. Proc. Am. Math. Soc. **132**(8), 2265–2271 (2004)
145. Tidblom, J.: Improved L^p Hardy Inequalities. Ph.D. thesis, Stockholm University (2005)
146. Ward, A.: On Essential Self-Adjointness, Confining Potential and the L_p Hardy inequality. Ph.D. thesis, Massey University, Albany (2014)
147. Weder, R.A.: Spectral properties of one-body relativistic spin-zero Hamiltonians. Ann. Inst. H. Poincaré Sect. A (NS) **20**, 211–220 (1974)
148. Weder, R.A.: Spectral analysis of pseudodifferential operators. J. Funct. Anal. **20**(4), 319–337 (1975)
149. Wen, G.-C.: Conformal Mappings and Boundary-Value Problems. Translations of Mathematical Monographs, vol. 166. American Mathematical Society, Providence (1992)
150. Whittaker, E.T., Watson, G.N.: A Course of Modern Analysis, 4th edn. The University Press, Cambridge (1940)
151. Yafaev, D.: Sharp constants in the Hardy-Rellich inequalities. J. Funct. Anal. **168**, 121–144 (1999)

Author Index

A.A. Balinsky et al., *The Analysis and Geometry of Hardy's Inequality*,
Universitext, DOI 10.1007/978-3-319-22870-9

Subject Index

A.A. Balinsky et al., *The Analysis and Geometry of Hardy's Inequality*,
Universitext, DOI 10.1007/978-3-319-22870-9

Notation

$Y := L^1(\mathbb{R}^+; L^\infty(\mathbb{S}^1); rdr) = L^1(\mathbb{R}^+; rdr) \otimes L^\infty(\mathbb{S}^1)$, 178
$\sqrt{-\Delta + m^2}$, 44
$-\Delta_{\mathbf{A}}$, 167
$A^\bigstar$, 22
$C^{k,\gamma}(\overline{\Omega})$, 19
$C^k(\overline{\Omega})$, 19
$C_p(K, \Omega)$, 78
$Crit_F$, 190
$D_0^{1,p}(\Omega)$, 15
$D_{int}(\Omega)$, 104
E^*, 28
$G(\Omega)$, 53
$H(\mathbf{y})$, 68
$H^1_{\mathbf{A}}$, 207
$H^{k,p}(\Omega)$, 14
$H^1_{0,\mathbf{A}}(\Omega)$, 167
$H^{1,p}_{0,\mathbf{A}}(\Omega)$, 168
$H_{\mathbf{A}}$, 170
$L^1_{loc}(\Omega)$, 14
$L^{q,\infty}(\mathbb{R}^n)$, 25
$M_k(\lambda)$, 70
$N(\mathbf{x})$, 50
P^k_l, 40
$W^{k,p}(\Omega)$, 13
$W^{k,p}_0(\Omega)$, 13
$X = L^\infty(\mathbb{R}^+; L^2(\mathbb{S}^1); rdr) \equiv L^\infty(\mathbb{R}^+; rdr) \otimes L^2(\mathbb{S}^1)$, 176
$\|u\|_{k,p,\Omega}$, 14
$\|u\|_{p,\Omega}$, 14
$\bar{s}$, 56
δ_M, 83
$\delta_{M,p}$, 83
$\hat{f}$, 23
$\mathbb{D}_{\mathbf{A}}$, 205
$\mathbb{F}f$, 23
$\mathbb{H}^1_{\mathbf{B}}$, 207
$\mathbb{M}f$, 79
$\mathbb{P}$, 206
$\mathbb{P}_{\mathbf{A}}$, 204
$\mathbb{S}_{\mathbf{A}}$, 204
$\mathcal{B}(W^{k,p}(\Omega), W^{k,p}(\mathbb{R}^n))$, 20
$\mathcal{R}(\Omega)$, 50
$\mathcal{R}_C(\Omega)$, 50
$\mathcal{S}$, 208
$\mathcal{S}(\mathbb{R}^n)$, 23
$\mathcal{S}(\Omega)$, 51
$\mathcal{S}^*$, 209
$\dim_A(E)$, 79
$\dim_{M,\Omega}(\partial\Omega)$, 73
$\dim_{\mathcal{H}}(E)$, 79
nul, 209
$\nabla_{\mathbf{A}}$, 167
$\boldsymbol{\sigma} \cdot \mathbf{B}$, 204
$\sigma_k(\lambda)$, 70
$\sqrt{-\Delta}$, 44
$\tilde{\kappa}$, 65
$\Delta_{\mathbf{A}}$, 170
$\Psi(\mathbf{A})$, 173
$\Sigma(\Omega)$, 53
$d\mathbf{A}$, 167
$f * g$, 23
f^*, 21
$f^\bigstar$, 22
$h_{\mathbf{A}}$, 170
$m(\mathbf{y})$, 56
$ord_{P_j} F$, 190

A.A. Balinsky et al., *The Analysis and Geometry of Hardy's Inequality*,
Universitext, DOI 10.1007/978-3-319-22870-9