

January 12, 2022

Publications, sorted by subject

1. Theses

- (1) D. Haroske. *Gewichtete Funktionenräume und kompakte Einbettungen*. Diplomarbeit, Friedrich-Schiller-Universität Jena, Germany, 1992.
- (2) D. Haroske. *Entropy Numbers and Approximation Numbers in Weighted Function Spaces of Type $B_{p,q}^s$ and $F_{p,q}^s$, Eigenvalue Distributions of Some Degenerate Pseudodifferential Operators*. PhD thesis, Friedrich-Schiller-Universität Jena, Germany, 1995.
- (3) D.D. Haroske. *Limiting embeddings, entropy numbers and envelopes in function spaces*. Habilitationsschrift, Friedrich-Schiller-Universität Jena, Germany, 2002.

2. Books, Booklets

- (4) D. Haroske. Some logarithmic function spaces, entropy numbers, applications to spectral theory. *Dissertationes Math.*, 373:1–59, 1998.
- (5) D.E. Edmunds and D.D. Haroske. Spaces of Lipschitz type, embeddings and entropy numbers. *Dissertationes Math.*, 380:1–43, 1999.
- (6) D.D. Haroske, Th. Runst, and H.J. Schmeißer (Editors). *Function Spaces, Differential Operators and Nonlinear Analysis - The Hans Triebel Anniversary Volume*. 474 + xii pages, Birkhäuser, Basel, 2003.
- (7) D.D. Haroske. *Envelopes and Sharp Embeddings of Function Spaces*. Chapman & Hall/CRC Research Notes in Mathematics, Vol. 437. Chapman & Hall/CRC, Boca Raton, FL, 2007.
- (8) D.D. Haroske and H. Triebel. *Distributions, Sobolev Spaces, Elliptic Equations*. EMS Textbooks in Mathematics (ETB). 303 pages, European Mathematical Society (EMS), Zürich, 2007.

3. Papers in journals

- (9) D. Haroske and H. Triebel. Entropy numbers in weighted function spaces and eigenvalue distribution of some degenerate pseudodifferential operators I. *Math. Nachr.*, 167:131–156, 1994.
- (10) D. Haroske and H. Triebel. Entropy numbers in weighted function spaces and eigenvalue distribution of some degenerate pseudodifferential operators II. *Math. Nachr.*, 168:109–137, 1994.
- (11) D. Haroske. Approximation numbers in some weighted function spaces. *J. Approx. Theory*, 83(1):104–136, 1995.

- (12) D.D. Haroske. Embeddings of some weighted function spaces on \mathbb{R}^n ; entropy and approximation numbers. A survey of some recent results. *An. Univ. Craiova, Ser. Mat. Inform.*, vol. XXIV:1–44, 1997.
- (13) D.D. Haroske. Logarithmic Sobolev spaces on \mathbb{R}^n ; entropy numbers, and some application. *Forum Math.*, 12(3):257–313, 2000.
- (14) D.E. Edmunds and D.D. Haroske. Embeddings in spaces of Lipschitz type, entropy and approximation numbers, and applications. *J. Approx. Theory*, 104(2):226–271, 2000.
- (15) D.D. Haroske. On more general Lipschitz spaces. *Z. Anal. Anwendungen*, 19(3):781–799, 2000.
- (16) D.D. Haroske and S.D. Moura. Continuity envelopes of spaces of generalised smoothness, entropy and approximation numbers. *J. Approx. Theory*, 128(2):151–174, 2004.
- (17) D.D. Haroske and H. Triebel. Wavelet bases and entropy numbers in weighted function spaces. *Math. Nachr.*, 278(1-2):108–132, 2005.
- (18) A.M. Caetano and D.D. Haroske. Continuity envelopes of spaces of generalised smoothness : a limiting case; embeddings and approximation numbers. *J. Funct. Spaces Appl.*, 3(1):33–71, 2005.
- (19) D.D. Haroske and E. Tamási. Wavelet frames in anisotropic Besov spaces. *Georgian Math. J.*, 12(4):637–658, 2005.
- (20) D.D. Haroske. Growth envelope functions in Besov and Sobolev spaces. Local versus global results. *Math. Nachr.*, 280(9-10):1094–1107, 2007.
- (21) D.D. Haroske and S.D. Moura. Continuity envelopes and sharp embeddings in spaces of generalized smoothness. *J. Funct. Anal.*, 254(6):1487–1521, 2008.
- (22) D.D. Haroske and L. Skrzypczak. Entropy and approximation numbers of embeddings of function spaces with Muckenhoupt weights, I. *Rev. Mat. Complut.*, 21(1):135-177, 2008.
- (23) D.D. Haroske. Sobolev spaces with Muckenhoupt weights, singularities and inequalities. *Georgian Math. J.*, 15(2):263-280, 2008.
- (24) D.D. Haroske and I. Piotrowska. Atomic decompositions of function spaces with Muckenhoupt weights, and some relation to fractal analysis. *Math. Nachr.*, 281(10):1476–1494, 2008.
- (25) D.D. Haroske and C. Schneider. Besov spaces with positive smoothness on \mathbb{R}^n , embeddings and growth envelopes. *J. Approx. Theory*, 161(2):723–747, 2009.
- (26) D.D. Haroske and H.-J. Schmeißer. On trace spaces of function spaces with a radial weight: the atomic approach. *Complex Var. Elliptic Equ.*, 55(8-10):875–896, 2010.
- (27) D.D. Haroske. Growth envelopes in Muckenhoupt weighted function spaces: the general case. *Funct. Approx. Comment. Math.*, 42(2):169–216, 2010.
- (28) D.D. Haroske and L. Skrzypczak. Spectral theory of some degenerate elliptic operators with local singularities, *J. Math. Anal. Appl.*, 371(1):282–299, 2010.
- (29) D.D. Haroske and L. Skrzypczak. Entropy and approximation numbers of embeddings of function spaces with Muckenhoupt weights, II. General weights, *Ann. Acad. Sci. Fenn. Math.*, 36:111–138, 2011.

- (30) D.D. Haroske and L. Skrzypczak. Entropy numbers of embeddings of function spaces with Muckenhoupt weights, III. Some limiting cases, *J. Funct. Spaces Appl.*, 9(2):129–178, 2011.
- (31) D.D. Haroske and H. Triebel. Embeddings of function spaces: A criterion in terms of difference, *Complex Var. Elliptic Equ.*, 56(10-11):931–944, 2011.
- (32) D.D. Haroske and L. Skrzypczak. Continuous embeddings of Besov-Morrey function spaces. *Acta Math. Sinica*, 28(7):1307–1328, 2012.
- (33) M.L. Goldman and D.D. Haroske. Estimates for continuity envelopes and approximation numbers of Bessel potentials, *J. Approx. Theory*, 172:58–85, 2013.
- (34) M. Gol'dman, D.D. Haroske, and A. Malysheva. Estimates of the uniform modulus of continuity for Bessel potentials. *Dokl. Akad. Nauk*, 450(2):143–146, 2013. Russian; English transl.: *Dokl. Math.* 87, 282–285 (2013).
- (35) D.D. Haroske and H. Triebel. Some recent developments in the theory of function spaces involving differences. *J. Fixed Point Theory Appl.*, 13(2):341–358, 2013.
- (36) D.D. Haroske and L. Skrzypczak. Embeddings of Besov-Morrey spaces on bounded domains. *Studia Math.*, 218:119–144, 2013.
- (37) M.L. Gol'dman and D.D. Haroske. Optimal Embedding and Sharp Estimates of the Continuity Envelope for Generalized Bessel Potentials. *Dokl. Akad. Nauk*, 453(3):243–246, 2013. Russian; English transl.: *Dokl. Math.* 88, 664–668 (2013).
- (38) D.D. Haroske and L. Skrzypczak. On Sobolev and Franke-Jawerth embeddings of smoothness Morrey spaces. *Rev. Mat. Complut.*, 27(2):541–573, 2014.
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- (40) W. Yuan, D.D. Haroske, L. Skrzypczak, and D. Yang. Embedding properties of Besov type spaces. *Appl. Anal.*, 94(2):319–341, 2015.
- (41) W. Yuan, D.D. Haroske, S.D. Moura, L. Skrzypczak, and D. Yang. Limiting embeddings in smoothness Morrey spaces, continuity envelopes and applications. *J. Approx. Theory*, 192:306–335, 2015.
- (42) A.M. Caetano and D.D. Haroske. Embeddings of Besov spaces on fractal h -sets. *Banach J. Math. Anal.*, 9(4):259–295, 2015.
- (43) W. Yuan, D.D. Haroske, L. Skrzypczak, and D. Yang. Embedding properties of weighted Besov type spaces. *Appl. Anal.*, 94(2):318–340, 2015.
- (44) A.M. Caetano and D.D. Haroske. Traces for Besov spaces on fractal h -sets and dichotomy results, *Studia Math.*, 231(2):117–148, 2015.
- (45) D.D. Haroske and S.D. Moura. Some specific unboundedness property in Smoothness Morrey Spaces. The non-existence of growth envelopes in the subcritical case, *Acta Math. Sinica*, 32(2):137–152, 2016.
- (46) D.D. Haroske, S.D. Moura, and L. Skrzypczak. Smoothness Morrey Spaces of regular distributions, and some unboundedness property, *Nonlinear Anal.*, 139:218–244, 2016.
- (47) D.D. Haroske and L. Skrzypczak. Embeddings of weighted Morrey spaces, *Math. Nachr.*, 290(7):1066–1086, 2017.
- (48) D.D. Haroske and Th. Mieth. Traces of Muckenhoupt weighted function spaces in case of distant singularities, *Georgian Math. J.*, 24(3):373–392, 2017.

- (49) D.D. Haroske, S.D. Moura, C. Schneider, and L. Skrzypczak. Unboundedness properties of Smoothness Morrey spaces of regular distributions on domains. *Sci. China Math.*, 60(12):2349–2376, 2017.
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- (51) D.D. Haroske, Ph. Skandera and H. Triebel. An approach to wavelet isomorphisms of function spaces via atomic representations, *J. Fourier Anal. Appl.*, 24(3):830–871, 2018.
- (52) J. Liu, D.D. Haroske, and D. Yang. New Molecular Characterizations of Anisotropic Musielak-Orlicz Hardy Spaces and Their Applications. *J. Math. Anal. Appl.*, 475(2):1341–1366, 2019.
- (53) J. Liu, D.D. Haroske, D. Yang, and W. Yuan. Dual Spaces and Their Applications in Wavelet Characterizations of Anisotropic Musielak-Orlicz Hardy Spaces. *Appl. Comput. Math.*, 19(1):106–131, 2020.
- (54) D.D. Haroske and L. Skrzypczak. Morrey Sequence Spaces: Pitt’s Theorem and compact embeddings. *Constr. Approx.*, 51(3):505–535, 2020.
- (55) J. Liu, D.D. Haroske, and D. Yang. A Survey on Some Anisotropic Hardy-Type Function Spaces. *Anal. Theory Appl.*, 36(4):373–456, 2020.
- (56) D.D. Haroske and L. Skrzypczak. Entropy numbers of compact embeddings of Smoothness Morrey spaces on bounded domains. *J. Approx. Theory*, 256:105424, 2020.
- (57) D.D. Haroske, S.D. Moura, and L. Skrzypczak. Some embeddings of Morrey spaces with critical smoothness. *J. Fourier Anal. Appl.*, 26(3):50, 2020.
- (58) Ó. Domínguez, D.D. Haroske, and S. Tikhonov. Embeddings and characterizations of Lipschitz spaces. *J. Math. Pures Appl.*, 144:69–105, 2020.
- (59) D.D. Haroske and L. Skrzypczak. Nuclear embeddings in weighted function spaces. *Integral Equations Operator Theory*, 92(6):46, 2020.
- (60) E.G. Bakhtigareeva, M.L. Gol’dman, and D.D. Haroske. Optimal Calderón Spaces for generalized Bessel potentials. In: *Function spaces, approximation theory, and related problems of analysis*, Collected papers. In commemoration of the 115th anniversary of Academician Sergei Mikhailovich Nikol’skii. *Tr. Mat. Inst. Steklova*, 312:43–81, 2021. Russian; Engl. Transl.: Proc. Steklov Inst. Math. 312 (2021), 37–75.
- (61) H.F. Gonçalves, D.D. Haroske, and L. Skrzypczak. Compact embeddings of Besov-type and Triebel-Lizorkin-type spaces on bounded domains. *Rev. Mat. Complut.*, 34:761–795, 2021.
- (62) B.F. Besov, D.D. Haroske and H. Triebel. Traces of some weighted function spaces and related non-standard real interpolation of Besov spaces. *Math. Nachr.*, to appear.
- (63) D.D. Haroske, C. Schneider, and K. Szarvas. Growth envelopes of some variable and mixed function spaces. *J. Geom. Anal.*, 32:94, 2022.
- (64) D.D. Haroske, H.-G. Leopold, and L. Skrzypczak. Nuclear embeddings in general vector-valued sequence spaces with an application to Sobolev embeddings of function spaces on quasi-bounded domains. *J. Complexity*, 69:101605, 2022.

- (65) D.D. Haroske, S.D. Moura, and L. Skrzypczak. Wavelet decomposition and embeddings of generalised Besov-Morrey spaces. *Nonlinear Anal.*, 214(1), 112590, 2022.

4. Conference proceedings, book contributions

- (66) D. Haroske. Entropy numbers in weighted function spaces and applications. In J. Rákosník, editor, *Function Spaces, Differential Operators and Nonlinear Analysis*, pages 207–214. Proceedings of the Conference held in Paseky nad Jizerou, September, 1995, Prometheus Publishing House, 1996.
- (67) D.D. Haroske. Embeddings in spaces of Lipschitz type, entropy and approximation numbers. In V. Mustonen and J. Rákosník, editors, *Function Spaces, Differential Operators and Nonlinear Analysis*, pages 99–112. Proceedings of the Conference held in Syöte, June, 1999, Math. Inst. Acad. Sci. Czech Republic, 2000.
- (68) A.M. Caetano and D.D. Haroske. Sharp estimates of approximation numbers via growth envelopes. In D.D. Haroske, Th. Runst, and H.J. Schmeißer, editors, *Function Spaces, Differential Operators and Nonlinear Analysis - The Hans Triebel Anniversary Volume*, pages 237–244. Birkhäuser, Basel, 2003.
- (69) D.D. Haroske. Envelope functions in real interpolation spaces. A first approach. In L. De Carli and M. Milman, editors, *Interpolation Theory and Applications*, volume 445 of *Contemp.Math.*, pages 93–102. Proceedings of the Conference held in Miami, FL, March 29-31, 2006, AMS, Providence, RI., 2007.
- (70) D.D. Haroske. Singularities in Muckenhoupt weighted function spaces. Proceedings of the Conference *Function Spaces VIII* held in Będlewo, Poland, July 3-7, 2006, volume 79 of *Banach Center Publications*, pages 95-112, Polish Acad. Sci., Warsaw, 2007.
- (71) D.D. Haroske and H.-J. Schmeisser. Extrapolation of function spaces and related topics. In *Proc. NAFSA-9*, pages 271–303. Prague 2011, Acad. Sci. Czech Repub., 2011.
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- (73) D.D. Haroske. Dichotomy in Muckenhoupt weighted function space: A fractal example. In B.M. Brown, J. Lang, and I. Wood, editors, *Spectral Theory, Function Spaces and Inequalities. New Techniques and Recent Trends*, volume 219 of *Operator Theory: Advances and Applications*, pages 69–89. Springer, Basel, 2012.
- (74) D.D. Haroske and Ph. Skandera. Embeddings of doubling weighted Besov spaces. In *Function spaces X*, Banach Center Publ., pages 105–119, Warsaw, 2014. Polish Acad. Sci., Warsaw.
- (75) D.D. Haroske and L. Skrzypczak. Compact embeddings of weighted smoothness spaces of Morrey type: an example. In M. Cwikel and M. Milman, editors, *Functional Analysis, Harmonic Analysis and Image Processing: A collection of papers in honor of Björn Jawerth*, volume 693 of *Contemp.Math.*, pages 235–254. AMS, Providence, RI., 2017.

- (76) D.D. Haroske and H.-J. Schmeisser. Gagliardo-Nirenberg inequalities for spaces with dominating mixed derivatives. In P. Jain and H.-J. Schmeisser, editors, *Function Spaces and Inequalities New Delhi, India, December 2015*, Springer Proceedings in Mathematics & Statistics, pages 117–135, Singapore, 2017. Springer.
- (77) D.D. Haroske and L. Skrzypczak. Some quantitative result on compact embeddings in smoothness Morrey spaces on bounded domains; an approach via interpolation. In *Function spaces XII*, volume 119 of *Banach Center Publ.*, pages 181–191, Warsaw, 2019. Polish Acad. Sci., Warsaw.

5. Papers in preparation, submitted papers

- (78) H.F. Gonçalves, D.D. Haroske, and L. Skrzypczak. Limiting embeddings of Besov-type and Triebel-Lizorkin-type spaces on bounded domains, and extension operator. *submitted*; arXiv:2109.12015.
- (79) D.D. Haroske, H.-G. Leopold, S.D. Moura, and L. Skrzypczak. Nuclear embeddings in function spaces of generalised smoothness. *in preparation*
- (80) D.D. Haroske, S.D. Moura, and L. Skrzypczak. Growth envelopes of generalised Morrey spaces. *in preparation*
- (81) D.D. Haroske and L. Skrzypczak. Nuclear embeddings in smoothness Morrey spaces. *in preparation*
- (82) D.D. Haroske and H. Triebel. Morrey smoothness spaces: A new approach. *submitted*; arxiv.org/abs/2110.10609.

6. Preprints, technical reports

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- (85) D.E. Edmunds and D. Haroske. Spaces of Lipschitz type, embeddings and entropy numbers. *Forschungsergebnisse Math/Inf/98/10*, p. 1-65, Universität Jena, Germany, 1998.
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- (87) D.D. Haroske. Envelopes in function spaces - a first approach. *Jenaer Schriften zur Mathematik und Informatik Math/Inf/16/01*, p. 1-72, Universität Jena, Germany, 2001.
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- (90) D.D. Haroske and E. Tamási. Wavelet frames in anisotropic Besov spaces. Jenaer Schriften zur Mathematik und Informatik Math/Inf/01/05, p. 1-22, Universität Jena, Germany, 2005.
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- (92) D.D. Haroske and S.D. Moura. Continuity envelopes and sharp embeddings in spaces of generalized smoothness. Jenaer Schriften zur Mathematik und Informatik Math/Inf/19/06, Universität Jena, Germany, 2006.
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- (94) D.D. Haroske and L. Skrzypczak. Entropy and approximation numbers of embeddings of function spaces with Muckenhoupt weights, II. General weights. Bericht, Nr. 2008-4, Philipps-Universität Marburg, Germany, 2008.

7. Miscellanea

- (95) D. Haroske and H. Scharm. Pascal- und Hilbert-Matrizen. *Wurzel (Math. Schülerzeitschrift)*, 21(1):2–7, 1987. (German).
- (96) D.D. Haroske. Envelopes in function spaces. A new tool - ideas and first results. Colloquium del Departamento de Análisis Matemático Curso 1999-2000, p. 59-79, Universidad Complutense de Madrid, Spain, 2001.
- (97) A.M. Caetano and D.D. Haroske. An interview with Hans Triebel. CIM Bulletin, No. 23, p. 13-17, December 2007. Universidade de Coimbra, Portugal. *Reprinted in*: EMS Newsletter, December 2008, p. 37-40, EMS Publishing House, Zürich; *Chinese transl. in*: Mathematical Advance in Translation, 2010, vol. 29, no. 1, pp. 45-49.
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8. Lecture Notes (in German)

- (99) Differential- und Integralrechnung I & II, 273 S., 2002, 2012/13, 2015/16, 2017/18
- (100) Funktionentheorie, Partielle Differentialgleichungen, 134 S., 2002
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- (104) Approximationstheorie, 120 S., 2004, 2007, 2010, 2013/14, 2016/17
- (105) Elliptische Differentialgleichungen, 190 S., 2005/06, 2007/08, 2011/12, 2015
- (106) Mathematik 1 für Ingenieure, 134 S., 2009

- (107) Höhere Analysis, I & II, 214 S., 2011/12, 2014/15, 2017/18, 2021
- (108) Grundlagen der Analysis, 126 S., 2012, 2017, 2021
- (109) Funktionalanalysis, 127 S., 2018
- (110) Fourieranalysis 1, 91 S., 2018/19, 2020
- (111) Funktionentheorie 1, 77 S., 2019/20