

Curriculum Vitae & List of Publications

Ib Madsen

University of Copenhagen, Department of Mathematical Sciences

Personal

Born on April 12, 1942, in Copenhagen. Married to Ulla Lykke Jørgensen, 2 children.

Academic Degrees

1965 Cand. Scient., University of Copenhagen
1970 Ph.D., University of Chicago

Appointments and major Visiting Positions

1970-1971 Research Instructor, University of Chicago
1971-1983 Assoc. Professor, University of Aarhus
1979-1985 Visiting Professor, University of Chicago (one month each year)
1980 Visiting Professor, Princeton University (3 months).
1983-2008 Professor, University of Aarhus
1986-1987 Visiting member of Institute for Advanced Study, Princeton
1995-2005 Visiting Professor, Stanford University (two months every summer)
2008-2016 Professor, University of Copenhagen

Editorships

1988-2000 Managing Editor for Acta Mathematica
1998-2014 Assoc. Editor for Jour. European Math. Soc.

Honours

1978 Member of Royal Danish Academy of Science and Letters
1982 Awarded Holst-Knudsens Videnskabspris
1992 Awarded Humbolts Forschungspreis
1998 Member of Royal Swedish Academy of Sciences
2000 Member of Royal Norwegian Academy
2009-2013 Awarded ERC Advanced Grant
2011 Awarded Ostrowski Prize

International Research Relations

1993-1994 Member of Topology Panel for speaker selection to International Congress of Mathematicians, Zürich, 1994.
1995-2006 Member of Danish National Committee for Mathematics. Chair from 1997.
1996-2000 Member of Scientific Board of Max-Planck-Institut, Matematik, Bonn.
2001-2002 Chair of Topology Panel for speaker selection to International Congress of Mathematicians, Beijing, 2002.
2006 Member of Programme Committee for the European Congress of Mathematicians, Amsterdam 2008.

Selected Invited Lectures

1972	16th Scandinavian Congress of Mathematicians, Göteborg University
1978	International Congress of Mathematicians, Helsingfors University
1980	18th Scandinavian Congress of Mathematicians, University of Aarhus
1980	Annual British Mathematical Colloquium, Sheffield, U.K.
1992	First European Congress of Mathematicians, Paris University
1992	21st Scandinavian Congress of Mathematicians, Luleaa, Sweden
1995	Current Development in Mathematics, Harvard University
1999	The Namboodiri Lectures, Chicago University
2005	The Rademacher Lectures, Penn University
2005	Triennial Differential Geometry Conference, Harvard University
2005	Clay distinguished Lecturer, Seattle University
2006	Plenary address, International Congress of Mathematicians, Madrid
2008	The Coble Lectures, University of Illinois, Urbana
2009	Plenary address, British-Nordic Congress, Oslo University
2009	Plenary lecture, Topology and Geometry at Münster
2011	Three plenary lectures at the Sullivan celebration, June 2011, Stony Brook
2012	Abel Symposium in honour of John Milner, Minnesota
2012	Ostrowski Prize Lecture, Basel
2017	The Kan Lectures, University of Utrecht
1970-2017	Numerous seminar, colloquium, and conference talks

PhD Students

Erkki Laitinen (PhD 1980)
Marcel Bökstedt (PhD 1981)
Steffen Bentzen (PhD 1983)
Jan-Alve Svensson (PhD 1986)
Kenneth Hansen (PhD 1992)
Lisbeth Fajstrup (PhD 1992)
Lars Hesselholt (PhD 1994)
Christian Schlichtkrull (PhD 1997)
Kåre Nielsen (PhD 2001)
Søren Galatius (PhD 2004)
Søren Boldsen (PhD 2009)
Emanuele Dotto (PhD 2012)
Kristian Moi (PhD 2014)
Mathias Gray (PhD 2015)

List of Publications

1. A. Kock, L. Kristensen, I. Madsen: *Cochain Functors for General Cohomology Theories I*. Math. Scand., **20** (1967) 131-150.
2. A. Kock, L. Kristensen, I. Madsen: *Cochain Functors for General Cohomology Theories II*. Math. Scand., **20** (1967) 151-176.
3. L. Kristensen, I. Madsen: *On Evaluation of Higher Order Cohomology Operations*. Math. Scand., **20** (1967) 114-130.
4. L. Kristensen, I. Madsen: *Note on Whitehead Products in Spheres*. Math. Scand., **21** (1967) 301-314.
5. L. Kristensen, I. Madsen: *On the Structure of the Operation Algebra for Certain Cohomology Theories*. Proceedings, Conference on Algebraic Topology, University of Illinois at Chicago Circle, Chicago, (1968) pp. 134-161.
6. I. Madsen: *The Surgery Formula and Homology Operations*. Proceedings of the Advanced Study Institute on Algebraic Topology, Aarhus, (1970) pp. 356-375.
7. G. Brumfiel, I. Madsen, R.J. Milgram: *PL-Characteristic Classes and Cobordism*. Bull. Amer. Math. Soc., **77** (1971) 1025-1030.
8. N.A. Baas, I. Madsen: *On the Realization of Certain Modules over the Steenrod Algebra*. Math. Scand., **31** (1972).
9. G. Brumfiel, I. Madsen, R.J. Milgram: *PL-Characteristic Classes and Cobordism*. Ann. of Math., **97** (1973) 82-159.
10. I. Madsen, R.J. Milgram: *On Spherical Fibre Bundles and their PL-Reduction*. Recent Developments in Topology, Oxford, 1973.
11. I. Madsen, R.J. Milgram: *The Oriented Topological and PL-Cobordism Rings*. Bull. Amer. Math. Soc., **80** (1974) 855-860.
12. H. Ligaard, I. Madsen: *Homology Operations in the Eilenberg-Moore Spectral Sequences*. Math. Z., **143** (1975) 45-54.
13. I. Madsen: *On the Action of the Dyer-Lashof Algebra in $H^*(G)$* . Pacific J. Math., **69** (1975) 235-275.
14. I. Madsen: *Higher Torsion in SG and BSG*. Math. Z., **143** (1975) 55-80.
15. I. Madsen, R.J. Milgram: *The Universal Smooth Surgery Class*. Comment Math. Helv., **50** (1975) 281-310.
16. I. Madsen, C.B. Thomas, C.T.C. Wall: *The Topological Spherical Space Form Problem II: Existence of Free Actions*. Topology, **15** (1976) 375-383.
17. G. Brumfiel, I. Madsen: *Evaluation of the Transfer and the Universal Surgery Classes*. Invent. Math., **32** (1976) 133-169.
18. I. Madsen, J. Tornehave, V. Snaitch: *Infinite Loop Maps in Geometric Topology*. Math. Proceedings, Cambridge Phil. Soc., **81** (1977) 399-430.
19. I. Madsen: *Smooth Spherical Space Forms*. Proceedings LNM, Evanston (1977), Springer Verlag, vol. 657, pp. 303-352.

20. I. Madsen: *Remarks on Normal Invariants from the Infinite Loop Space Viewpoint*. Proceedings, Symp. Pure Math., vol. 32 part 1 (1978) 91-103.
21. I. Madsen: *Spherical Space Forms*. Proceedings, International Congress of Mathematicians, Invited Lectures, Helsinki, (1978), vol. I, pp. 475-479.
22. E. Laitinen, I. Madsen: *Topological Classification of $SL_2(\mathbb{F}_p)$ Space Forms*. Proceedings LNM, Aarhus (1979), Springer Verlag, vol. 763, pp. 235-261.
23. I. Madsen, R.J. Milgram: *The Classifying Spaces for Surgery and Cobordism of Manifolds*. Ann. of Math. Studies, **92** (1979).
24. I. Madsen, L.R. Taylor, B. Williams: *Tangential Homotopy Equivalences*. Comment. Math. Helv., **55** (1980) 445-484.
25. I. Madsen: *Spherical Space Forms: A Survey*. Proceedings, 18th Scand. Congress of Mathematicians, Birkhäuser, Boston, (1981), pp. 82-104.
26. E. Laitinen, I. Madsen: *The L-theory of Groups with Periodic Cohomology I*. Preprint, Aarhus Univ., 1981.
27. I. Hambleton, I. Madsen: *Semi-Free Actions on \mathbb{R}^n with One Fixed Point*. CMS Conference Proceedings, AMS, Providence (1981), vol. 2, pp. 89-134.
28. I. Madsen, M. Rothenberg: *Classifying G-Spheres*. Bull. AMS, **7** (1982) 223-226.
29. I. Madsen: *Semi-Torsion and Space Forms*. Preprint, Aarhus Univ., 1982.
30. I. Madsen: *Reidemeister Torsion, Surgery Invariants and Spherical Space Forms*. Proceedings, London Math. Soc., (3), **46** (1983) 193-240.
31. I. Madsen, M. Rothenberg: *Odd Order Homeomorphisms of Spheres (An Outline)*. Contemp. Math., **19** (1983) 193-225.
32. S. Bentzen, I. Madsen: *On the Swan Subgroup of Periodic Groups*. Math. Ann., **264** (1983) 447-474.
33. I. Madsen: *Homology Operations in G/TOP*. Invent. Math., **70** (1983) 341-367.
34. I. Madsen, M. Rothenberg: *Equivariant Transversality and Automorphism Groups*. Proceedings, Leningrad Topology Conference, LNM, (1983), Springer Verlag.
35. I. Madsen, C.B. Thomas, C.T.C. Wall: *Topological Spherical Space Form Problem III*. Pacific J. Math., **106** (1983) 135-143.
36. I. Madsen: *On the Space of Manifold Structures for Lens Spaces*. Indian J. Math., **25** (1983) 277-304.
37. I. Madsen: *Spherical Space Forms in the Period Dimension*. Trudy Mat. Inst. Steklov, **154** (1984) 151-179.
38. I. Madsen, M. Raussen: *Smooth and Locally Linear G-Spheres*. Proceedings, Algebraic Topology, LNM (1984) Göttingen; LNM, Springer, **1172** (1985) 130-156.
39. I. Madsen, J.-A. Svensson: *Induction in Unstable Equivariant Homotopy Theory and Non-Invariance of Whitehead Torsion*. Contemp. Math., **37** (1985) 99-113.
40. I. Hambleton, I. Madsen: *Actions of Finite Groups on \mathbb{R}^{n+k} with Fixed Set \mathbb{R}^n* . Canadian J. Math., **38** (No. 4), (1986) 781-860.

41. I. Hambleton, I. Madsen: *Local Surgery Obstructions and Space Forms*. Math. Z., **193** (1986) 191-214.
42. I. Madsen: *Geometric Equivariant Bordism and K-Theory*. Topology, **25** (1986) 217-277.
43. I. Madsen, M. Rothenberg: *On the Classification of G-Spheres I: Equivariant Transversality*. Acta Math., **160** (1988), 65-104.
44. I. Madsen, M. Rothenberg: *On the Classification of G-spheres III: Top Automorphism Groups*. Preprint, Aarhus University, (1988).
45. I. Madsen, M. Rothenberg: *On the Homotopy Theory of Equivariant Automorphism Groups*. Invent. Math., **9** (1988) 623-637.
46. I. Madsen, J. Rosenberg: *The Universal Coefficient Theorem for Equivariant K-Theory of Real and Complex C*-Algebras*. Contemp. Math., **70** (1988) 145-173.
47. I. Hambleton, I. Madsen: *On the Discriminant of Forms with Arf Invariant One*. J. Reine und Angew. Math., **395** (1989) 142-166.
48. W. Lück, I. Madsen: *Equivariant L-Theory I*. Math. Z., **203** (1990) 503-526.
49. I. Madsen: *Lectures on Characteristic Classes in Algebraic Topology*. Fudan University, Shanghai; Lecture Notes Series, No. 58, Aarhus University, 1988. Chinese translation, 1989.
50. I. Madsen, M. Rothenberg: *Equivariant Pseudo-Isotopies and K_{-1}* . Proceedings, LNM, Springer Verlag, vol. 1375, pp. 216-230.
51. C.-F. Bödigheimer, I. Madsen: *Decompositions of Free Loop Spaces*. Mathematica Gottingensis, **61** (1986).
52. C.-F. Bödigheimer, I. Madsen: *Homotopy Quotients of Mapping Spaces and their Stable Splitting*. Oxford J. Math., **39** (1988) 401-409.
53. M. Bökstedt, W.C. Hsiang, I. Madsen: *The Cyclomatic Trace and the K-Theoretic Analogue of Novikov's Conjecture*. Proceedings, Natl. Acad. Sci., USA, (1989), vol. 86, pp. 8607-8609.
54. I. Madsen, M. Rothenberg: *On the Classification of G-Spheres II: PL Automorphism Groups*. Math. Scand., **64** (1989) 161-218.
55. I. Hambleton, R. Lee, I. Madsen: *Rigidity of Certain Finite Group Actions on the Complex Projective Plane*. Comment. Math. Helv., **64** (1989) 618-638.
56. W. Lück, I. Madsen: *Equivariant L-Theory II*. Math. Z., **204** (1990) 204-268.
57. I. Madsen, M. Raussen: *Locally Linear Representation Forms*. Osaka J. Math., **27** (1990) 567-590.
58. S. Bentzen, I. Madsen: *Trace Maps in Algebraic K-Theory and the Coates-Wiles Homomorphism*. J. Reine Angew. Math., **441** (1990) 171-195.
59. L. Hesselholt, I. Madsen: *The S^1 -Tate Spectrum*. J. Bol. Soc. Mat. Mex., (1992) 215-240.
60. M. Bökstedt, W.C. Hsiang, I. Madsen: *The Cyclotomic Trace in Algebraic K-Theory*. Invent. Math., **111** (1993) 465-540.

61. I. Hambleton, I. Madsen: *On the Computation of the Projective Surgery Groups*. *K-theory*, **7** (1993) 537-574.
62. M. Bökstedt, I. Madsen: *Topological Cyclic Homology of the Integers*. *Asterisque*, **226** (1994) 57-142.
63. I. Madsen: *The Cyclotomic Trace in Algebraic K-Theory*. *Proceedings, European Congress of Mathematicians, Paris 1992; Progress in Mathematics*, **120** (1992) 213-241.
64. M. Bökstedt, G. Carlsson, R. Cohen, T. Goodwillie, W.C. Hsiang, I. Madsen: *On the Algebraic K-Theory of Simply Connected Spaces*. *Duke Math. Jour.*, **84** No 3 (1996) 541-563.
65. I. Madsen, J. Tornehave: *From Calculus to Cohomology, and Characteristic Classes*. Cambridge Univ. Press, (1997), Chinese translation, 2003. ISBN 0521 589568.
66. M. Bökstedt, I. Madsen: *Algebraic K-Theory of Local Number Fields: the Unramified Case*. *Annals of Math. Studies*, **138** (1995) 28-57.
67. I. Madsen: *Algebraic K-Theory and Traces*. *Current Development in Mathematics*, International Press Inc., Boston, (1995) 191-321.
68. L. Hesselholt, I. Madsen: *On the K-Theory of Finite Algebras over Witt Vectors of Perfect Fields*. *Topology*, **36** No 1 (1997) 29-101.
69. L. Hesselholt, I. Madsen: *Cyclic Polytopes and the K-Theory of Truncated Polynomial Algebras*. *Invent Math.*, **130** (1997) 73-97.
70. A. Lindenstrauss, I. Madsen: *Topological Hochschild Homology of Number Rings*. *Trans AMS*, **352** No 5 (2000) 2179-2204.
71. I. Madsen, C. Schlichtkrull: *The Circle Transfer and K-Theory Localizations*. *Contemp. Math.*, **258** (2000) 307-327.
72. I. Madsen, U. Tillmann: *The Stable Mapping Class Group and $\mathcal{Q}(CP, \ast)$* . *Invent. Math.*, **145** (2001) 509-544.
73. L. Hesselholt, I. Madsen: *On the K-Theory of Nilpotent Endomorphisms*. *Contemp. Math.*, **271** (2001) 127-140.
74. L. Hesselholt, I. Madsen: *On the K-Theory of Local Fields*. *Annals of Math.*, **158** (2003) 1-113.
75. L. Hesselholt, I. Madsen: *The deRham-Witt Complex in Mixed Characteristic*. *Ann. Sci. Ecole Norm. Sup.* (2004), 1-43.
76. I. Madsen, M. Weiss: *The Stable Moduli Space of Riemann Surfaces: Mumford's Conjecture*. *Annals of Math.* **165** (2007) 843-941.
77. S. Galatius, I. Madsen, U. Tillmann: *Divisibility of the Stable Miller-Morita-Mumford Classes*. *J. Amer. Math. Soc.* **19** (2006) 759-779.
78. I. Madsen, M. Weiss: *The Stable Mapping Class Group and Stable Homotopy Theory*. *Proc. European Congress of Mathematicians, Stockholm, 2004*, 283-307.
79. S. Galatius, I. Madsen, U. Tillmann, M. Weiss: *The Homotopy Type of the Cobordism Category*. *Acta Mathematica*. **202** (2009), 195-239.

80. I. Madsen: *Moduli Spaces from a Topological Viewpoint*. Proceedings, International Congress of Mathematicians, Plenary Lectures, Madrid (2006), vol. I, 385-419.
81. I. Madsen: *The Mapping Class Group and Homotopy Theory*. In: Problems on Mapping Class Groups and Related Topics, Ed. B. Farb, Proceedings, Symp. Pure Math. **74** (2006), 91-95.
82. R. Cohen, I. Madsen: *Riemann Surfaces in a Background*. Proceedings of the Summer Institute in Algebraic Geometry; Eds. A. Bertram, L. Katzarkov, R. Pandharipande, Proceedings Symp. Pure Math. **80** (2009), 43-76.
83. I. Madsen: *An Integral Riemann-Roch Theorem for Surface Bundles*, Adv. Math. **225** (2010) No. 6, 3229-3258.
84. M. Bökstedt, I. Madsen: *The Cobordism Category and Waldhausen's K-theory*. Proceedings, Arolla Conference (Aug. 20-25 2012). Contemp. Math. vol 617, (2014), 39-80.
85. I. Madsen: Homology of the open moduli space of curves. In Handbook of Teichmüller Theory, vol III. IRMA Lectures in Mathematics and Theoretical Physics. EMS (2012), 717-746.
86. I Madsen: Moduli Spaces and Topology. In Frontiers of Mathematical Sciences. Sanya Forum, China. International Press (2011), 363-373.
87. A. Berglund, I. Madsen: Homological Stability of Diffeomorphism Groups. Pure and Applied Mathematics Quarterly. Special issue for D. Sullivan. Vol. 9, No 1 (2013), 1-48.
88. R. Cohen, I. Madsen: Stability for Closed Surfaces in a Background Space. Homology, Homotopy and Applications vol 13(2) (2011), 301-313.
89. B. Botvinnik, I. Madsen: The Moduli Space of Generalized Morse Functions. ArXivMath AT0212321.
90. A. Berglund, I. Madsen: Rational Homotopy Theory of Automorphisms of Manifolds. ArXiv: 1401.4096, math.AT.
91. L. Hesselholt, I. Madsen. Real Algebraic K-theory. Research monograph (in preparation).

Books Edited

1. J.L. Dupont, I. Madsen: *Algebraic Topology*. Proceedings of a symposium held at Aarhus University, Denmark, August 7-12, 1978. LNM **763**, Springer Verlag, 1979.
2. I. Madsen, B. Oliver: *Algebraic Topology*. Proceedings of a conference held at Aarhus University, Denmark, August 1-7, 1982. LNM **1051**, Springer Verlag, 1984.
3. K. Grove, I. Madsen, E.K. Pedersen: *Geometry and Topology*. Conference on Geometry and Topology, August 10-16, 1998, Aarhus, Denmark. In: *Contemp. Mathematics*, **258**, Amer. Math. Soc., Providence, Rhode Island, 2000.