

CURRICULUM VITAE for HANS J. MUNKHOLM

Latest update: January 9, 2004.

BORN April 1, 1940.
NATIONALITY Danish.
FAMILY STATUS Married 1966 to Ellen Stengaard Jessen,
Children: Mette (born 1969) and Kristian (born 1972).

EDUCATION:

1959 Graduated from High School (Birkerød Statsskole).
(1959-60 Military Services, Prinsens Livregiment, Viborg).
1960-66 Studies of Mathematics and Physics at Aarhus University.
1966 Received the degree mag.scient. from Aarhus University.
1972 Ph.D. from Aarhus University (Thesis: "The Borsuk Ulam Theorem").
Until 1969 no formal Ph.D. degree existed at Danish universities. Since I was abroad 1969-71, my thesis was submitted so relatively late in my career.

APPOINTMENTS:

1964-66 Amanuensisvikar (Substitute lecturer) at Aarhus University.
1966-69 Universitetsadjunkt (Research Fellow) at Aarhus University.
1969-71 Assistant Professor, University of Illinois at Chicago Circle.
1971-72 Lektorvikar (Substitute lecturer) at Aarhus University.
1972-89 Lektor (~ Assoc. Professor) at Odense University; this appointment being interrupted by the following items:
1977-78 Visiting Associate Professor, Princeton University.
1983-84 Visiting Professor, University of Maryland, College Park.
1989- Docent (~ Professor) at Odense University, interrupted by
1992-93 Guest Professor, University of Notre Dame.

OTHER AFFILIATIONS (EACH OF A DURATION OF 1-3 MONTHS):

Summer 1973 Visiting Scholar, Institut des Hautes Etudes Scientifiques, Paris, France.
Summer 1981 Visiting Member, Institute for Advanced Study, Princeton, N.J., USA.
Summer 1985 Visiting Scholar, Syracuse University, N.Y., USA.
Summer 1986 Visiting Member, Institute for Advanced Study, Princeton, N.J., USA.
Summer 1988 Visiting Member, Institute for Advanced Study, Princeton, N.J., USA.
Summer 1989 Visiting at SFB 170, Analysis und Geometrie, Göttingen, West Germany.
Summer 1990 Visiting Member, MSRI, Berkeley, California.
Summer 1993 Visiting Member, MSRI, Berkeley, California.
January 1994 Mittag-Leffler Institute, Stockholm, Sweden.

ADMINISTRATIVE EXPERIENCE:

- 1972 - 1974 Member (and in 1974 chairman) of the Committee for the Planning of Graduate Studies in the Sciences at Odense University.
- 1974 - 1976 Member of the Faculty Council, Science Faculty, Odense University.
- 1974 - 1976 Chairman of the Department of Mathematics, Odense University.
- 1985 - 1991 Chairman of the Faculty Council (= Dean), Science Faculty, Odense University.
- 1993 - Chairman of the Danish National Corps of External Examiners in Mathematics.
- 1996 - 1999 Chairman, Department of Mathematics and Computer Science, Odense University.
- 2003 - Leader of the research school OP-ALG-TOP-GEO, supported by the Danish Research Training Council.

RESEARCH INTERESTS:

My research has mainly dealt with algebraic and geometric topology. It can be roughly classified into the following four topics.

- a) Theorems and results of Borsuk Ulam type (publications 4-7)
- b) The Eilenberg Moore spectral sequence and strongly homotopy multiplicative maps (publications 8-13)
- c) Algebraic K -theory in classical algebraic and geometric topology (publications 14-16 and 20-27)
- d) Controlled algebraic and geometric topology (publications 28 - 34, 37 - 38, 40 and 42 - 44).

Other publications deal with projective geometry, algebra, differential geometry, combinatorial topology, and the history of mathematics.

PUBLICATIONS:

1. *On the Classification of Incidence Theorems in Plane Projective Geometry*, Math. Z. **90** (1965), 215-230.
2. *Induced Monomial Representations, Young Elements, and Metacyclic Groups*, Proc. Amer. Math. Soc. **19** (1969), 453-458.
3. *Mod 2 Cohomology of $D(2^n)$ and its Extensions by Z_2* , Proc. Conf. Alg. Top., Chicago Circle 1968.
4. *A Borsuk Ulam Theorem for Maps from a Sphere into a Compact, Topological Manifold*, Ill. J. of Math. **13** (1969), 116-124.
5. *Borsuk Ulam Type Theorems for Proper Z/p actions on (mod p) Homology Spheres*, Math. Scand. **24** (1969), 167-185.
6. *A Borsuk Ulam Theorem for Z/p^a -actions on S^{2n-1} and Maps $S^{2n-1} \rightarrow R^m$* , Osaka J. of Math. **9** (1970), 451-456.
7. (with M. Nakaoka) *The Borsuk Ulam Theorem and Formal Group Laws*, Osaka J. of Math. **9** (1972), 337-349.
8. *A Collapse Result for the Eilenberg Moore Spectral Sequence*, Bull. Amer. Math. Soc. **79** (1973), 115-118.
9. (with V.K.A.M. Gugenheim) *On the Extended Functoriality of Tor and Cotor*, J. Pure Appl. Alg. **4** (1974), 9-29.

10. *The Eilenberg Moore Spectral Sequence and Strongly Homotopy Multiplicative Maps*, J. Pure Appl. Alg. **4** (1974), 243-297.
11. *shm Maps of Differential Algebras, I. A Characterization up to Homotopy*, J. Pure Appl. Alg. **9** (1976), 39-46.
12. *shm Maps of Differential Algebras, II. Applications to Spaces with Polynomial Cohomology*, J. Pure Appl. Alg. **9** (1976), 47-63.
13. *DGA Algebras as a Quillen Model Category*, J. Pure Appl. Alg. **13** (1978), 221-232.
14. (with E.K. Pedersen) *On the Wall Finiteness Obstruction for the Total Space of Certain Fibrations*, Trans. Amer. Math. Soc. **261** (1980), 529-545.
15. *Whitehead Torsion for PL Fiber Homotopy Equivalences*, Algebraic Topology, Waterloo 1978, Lecture Notes in Math. **741**, Springer Verlag., New York 1979, 90-101.
16. *Transfer on Algebraic K-theory and Whitehead Torsion for PL Fibrations*, J. Pure Appl. Alg. **20** (1981), 195-225.
17. *A Chain Level Transfer Homomorphism for PL Fibrations*, Math. Z. **166** (1979), 183-186.
18. (with U. Haagerup) *Simplices of Maximal Volume in Hyperbolic n-space*, Acta Math. **147** (1981), 1-11.
19. *Simplices of Maximal Volume in Hyperbolic Space, Gromovs Norm, and Gromovs Proof of Mostows Rigidity Theorem (following Thurston)*, Topology Symposium, Siegen 1979, Proceedings, Lecture Notes in Math. **788**, Springer-Verlag, New York 1980, 109-124.
20. (with E.K. Pedersen) *Whitehead Transfers for S^1 -bundles. An Algebraic Description*, Comm. Math. Helv. **56** (1981), 404-430.
21. (with E.K. Pedersen) *The S^1 -transfer in Surgery Theory*, Trans. Amer. Math. Soc. **280** (1983), 277-302.
22. (with E.K. Pedersen) *Transfers in Algebraic K- and L-theory induced by S^1 -bundles*, Current Trends in Algebraic Topology, Part II, Amer. Math. Soc. 1982, 451-460.
23. (with A.A. Ranicki) *The Projective Class Group Transfer induced by an S^1 -bundle*, Current Trends in Algebraic Topology, Part II, Amer. Math. Soc. 1982, 461-484.
24. *The S^1 -transfer in Surgery Theory*, Algebraic Topology 1981, Seminar Notes, **1** (1982), Math. Dept., Aarhus University, 73-77.
25. *A Generalization of the Bass Heller Swan Injection*, Algebraic Topology 1981, Seminar Notes, **1** (1982), Math. Dept., Aarhus University, 78-82.
26. *Rothenberg Sequences and the Algebraic S^1 -bundle Transfer*, Contemporary Math. **19**, Amer. Math. Soc. 1983, 255-266.
27. *Transfer Maps on K_i , $i \leq 1$, Associated with Certain Periodic Resolutions*, Algebraic K-theory, Number theory, Geometry and Analysis, Proceedings, Bielefeld 1982, Lecture Notes in Math. **1046**, Springer-Verlag 1984, 254-254.
28. (with D.R. Anderson) *A Geometric Construction of the Boundedly Controlled Whitehead Group*, Geometry and Topology (C. McCrory and T. Shifrin, eds.), Marcel Dekker, New York 1987, 13-26.
29. (with D.R. Anderson) *An Introduction to Boundedly Controlled Simple Homotopy Theory*, Geometry and Topology (C. McCrory and T. Shifrin, eds.), Marcel Dekker, New York 1987, 27-42.

30. (with D.R. Anderson) *Boundedly Controlled Topology*, Lecture Notes in Mathematics **1323**, Springer-Verlag, Berlin, Heidelberg, New York, 1988.
31. (with D.R. Anderson) *Geometric Modules and Algebraic K-homology Theory*, *K - Theory* **3** (1990), 561-602.
32. (with D.R. Anderson) *The Boundedly Controlled Whitehead Theorem*, Proc. Amer. Math.-Soc. **117** (1993), 561 - 568.
33. (with D.R. Anderson) *The Bounded and Thin Whitehead Theorem*, Proc. Amer. Math. Soc. **117** (1993), 551 - 560.
34. (with D.R. Anderson) *Geometric Modules and Quinn Homology*, *K - theory*, **7** (1993), 443 - 475.
35. (with Chr. Berg, I. Netuka, D. Salinger, V. Soucek) *Degree Harmonization and Student Exchange Programs*, pp. 277 - 320, in *First European Congress of Mathematics, Paris, July 6 - 10, 1992*, Birkhäuser Verlag, 1994.
36. *Gymnasiet/HF og universiteterne*, in *Gymnasiet og HF år 2005*, København, Undervisningsministeriets Forlag, 1995, 41 - 46.
37. (with D. R. Anderson and Francis X. Connolly) *A Comparison of Continuously Controlled and Controlled K - theory*, Top. and Appl. **117** (1996) 9 - 46.
38. (with D. R. Anderson) *Continuously Controlled K - theory with Variable Coefficients*, J. Pure Appl. Alg. **145** (2000), 215 - 266.
39. (with E. S. Munkholm) *Poul Heegaard*, in *History of Topology*, (Ioan James, ed.), 925 - 946, North Holland, Amsterdam, 1999.
40. (with S. Prassidis) *Waldhausen's Nil Groups and Continuously Controlled K-theory*, Fund. Math. **161** (1999), 217 - 224.
41. (with E. S. Munkholm) *Poul Heegaard (1871 - 1948)*, *dansk-norsk topolog* (in Danish), NORMAT, **46** (1998), 145 - 169.
42. (with S. Prassidis) *On the vanishing of certain K-theory Nil groups*, in *Cohomological Methods in Homotopy Theory* (ed. I. Aguade, C. Broto, C. Cascuberta), Birkhäuser Verlag, 2001
43. (With R. dePont Christensen) *Topology with Monoidal Control*, Homology, Homotopy and Appl., **4** (2002), 2213 - 234.
44. (with R. dePont Christensen) *Monoidal Controlled Poincare Duality*, to appear Forum Mathematicum.