Curriculum Vitae Thomas Ernst

June 20, 2015

Born in Uppsala 60-08-17

1 Early studies

High school natural science 79-06-08 in Malmö. Studies at teknisk fysik-linjen in Lund 1979-1985. Master of science in engineering physics 85-10-21.

2 Courses

Mathematics-courses: Ordinary differential equations 5p, Gbg, 1989.
Algebraic structures 5p, Gbg, 1991.
Number theory 5p, Uppsala, 1996
General relativity 4p, Uppsala May 2003.
Graduate courses: Galois theory 5p, Stockholms Universitet 1991 (examiner Jan-Erik Roos)
Topology 4p, KTH, 1992 (examiner Lars Andersson)
Real analysis 5p, KTH 1994 (examiner Lars Andersson)
Elementary differential geometry 5p, KTH 1995 (examiner Lars Andersson)
Matrix groups 4p, KTH 1996 (examiner Dan Laksov)
Differential geometry 5B5210 5p, KTH 970815, (examiner Lars Andersson) (content: e.g. Principal- and vectorbundels, characteristic classes, analysis on manifolds, Hodge-theory, spinors, the index theorem)
Symmetric functions and group representations 4p, KTH 980615, (examiner Sergei Silvestrov)

Graduate courses at Uppsala universitet:

Real and complex analysis 6p, juni 1995. (examiner: Sten Kaijser)
Complex analysis C+D 5p, juni 1996.(examiner: Dennis Hejhal)
Harmonic analysis on symmetric spaces 1, 4p, October 1996. (examiner: Sten Kaijser)
Analytic number theory, 5p, May 15, 1997 (examiner: Sten Kaijser)
Distribution theory, 6p, April 1997 (examiner: Christer Kiselman)
Lie algebras, Lie groups and Representation theory, 5p, June 6, 1997, (examiner: Sergei Silvestrov)
Meromorfic functions and Riemann surfaces, 6p, 22 september 1997 (examiner: Sten Kaijser)
The Radon transform, 4p, December 11, 1997, (examiner: Christer Kiselman)
Operator algebras, 6 p, September 1, 1999, (examiner: Sergei Silvestrov)

3 Professional services

1. Referee for the Bulletin of the Belgian Mathematical Society - Simon Stevin.
2. Referee for Journal of nonlinear mathematical physics.
3. Referee for Indian Journal of mathematics.
4. Referee for Advan. Stud. Contemp. Math. (ASCM).
5. Referee for Advances in Difference Equations.
6. Referee for Elemente der Mathematik.
7. Referee for Czechoslovak Mathematical Journal.
8. Referee for Electronic Journal of Linear Algebra.
9. Referee for Revista Matematica Complutense
10. Referee for Linear algebra and its applications
11. Referee for Discrete mathematics
12. Referee for Proceedings of Estonian Academy of Sciences
13. Referee for Analele Stiintifice ale Univ. Ovidius Constanta, Ser. Matematica
14. Referee for The Ramanujan Journal
15. Referee for Electronic Journal of combinatorics
16. Referee for Axioms

17. Referee for Linear and Multilinear Algebra
18. Referee for Journal of number theory
19. Referee for The American Mathematical Monthly.
20. Referee for Journal of Applied Mathematics, Statistics and Informatics (JAMSI)
21. Referee for Le Matematiche
22. Referee for Journal of Mathematical Inequalities
23. Referee for Publicationes Mathematicae Debrecen.
24. Referee for Annales Mathematiques du Quebec
25. 166 Reviews for Zentralblatt MATH
26. 57 Reviews for mathematical reviews.

4 Participation in

1. 7th international Colloquium Quantum groups and integrable systems, Prague June 18-20, 1998 with talk.
2. European school in group theory, Leiden June 21 - July 4, 1998.
3. 4th international conference on lattice path combinatorics and applications, Vienna July 8-10, 1998.
4. Workshop on special functions and applications, Lund May 7, 1999 with talk.
5. Conference on q-Series with Applications to Combinatorics, Number Theory, and Physics, University of Illinois, October 26-28, 2000 with talk.
6. 10th international Colloquium Quantum groups and integrable systems Prague, June 21-23, 2001 with talk.
7. Conference on orthogonal functions and related topics, Röros, Norway, August 12 - 16, 2003, with talk.
8. Seventh international symposium on orthogonal polynomials, special functions and applications, Copenhagen August 18-22, 2003, with talk in parallel session.
9. International Conference on Difference Equations, Special Functions and Applications, Munich, July 25 - July 30, 2005, with talk.
10. Invited speaker Progress on Difference Equations, Homburg (Saar), March 5-9, 2006.

11. Invited speaker Progress on Difference Equations, Salzburg, March 31 - April 5, 2007.

12. Orthogonal polynomials, Special Functions and Applications, Marseille, July 2007

13. Peterson Conference Novacella Italy July 27 -August 4, 2007

14. Invited speaker Progress on Difference Equations, Salzburg, 2008.

15. Speaker, Noncommutative Structures in Mathematics and Physics Brussels, July 22-26, 2008

16. Invited speaker, Winter conference on Difference Equations Homburg (Saar), January 2009.

17. Jahrestagung der DMV, Graz, September 20-25, 2009 with talk in parallel session.

18. ICNAAM, Rhodes September 19-25 2010 with 3 talks in parallel session.

19. Special functions and orthogonal polynomials of Lie groups and their applications, Decin, Czech Republic August 14-20, 2011, with talk.

20. 17th ILAS Conference, Pure and Applied Linear Algebra: The new Generation Braunschweig, Germany, August 22-26, 2011, with talk.

21. Orthogonal polynomials and special functions, Copenhagen June 11-15, 2012, with talk.

22. QQQ, Tallin, July 9-14 2012 with two talks.

23. European Wolfram Technology Conference Frankfurt, 2013, 2014 and 2015

24. July 9-12, 2013, Kongsberg, Norway: conference on "Moduli Operads and Dynamics", at Buskerud University College, with talk.

25. Jahrestagung der DMV, Innsbruck, September 23-27, 2013 with talk in parallel session.

26. Group 30, Gent July 14– 18 2014, with talk.

5 Visit to

1. Mittag-Leffler institute May 1999 with talk and Jan.-June. 2005, with talks Feb. 22 and March 3.

2. Institute of theoretical physics at Munich, July 1999 with talk.

3. Penn state university October 23-24, 2000 with talk.

4. Wolfram research (Mathematica), Champaign, Illinois, October 29, 2000.

5. Institute of mathematics, Albert-Ludwigs-Universität Freiburg, June 13, 2001 with talk.

6. Visual Analysis AG (Mathematica), Munich, June 17, 2001.

7. Institute of mathematics at Vienna, June 19, 2001.

8. Institute of mathematical physics at Ulm, July 11-13, 2001.

9. Institute of theoretical physics at Uppsala with talk April 26, 2002.

10. Institute of mathematics i Stuttgart, July 2002.

11. l'Institut d'electronique et d'informatique Gaspard-Monge Université de Marne-la-Vallée , Paris, with talk, January 17, 2003.

12. RISC combinatorics group (Mathematica), Linz, Austria, January 20-21 with talk, May, 2003.

13. Institute of mathematics at tekniska högskolan in Luleå with talk January 29 2003.

14. Växjö university May 4, 2004 with talk.

15. Institute of mathematics, Technical University of Denmark, Lyngby at least 10 times.

6 Publications

1. A new method for q-calculus. Uppsala dissertations in mathematics 25, 2002.

2. A method for q-calculus. *J. nonlinear mathematical physics* **10** No.4 (2003) 487–525.

3. Some results for q-functions of many variables. *Rendiconti di Padova*,**112** (2004) 199–235.

4. Generalized Cauchy-Vandermonde determinants. *Advan. Stud. Contemp. Math.* **11**, no. 1 (2005) 1-10.

5. q-Generating functions for one and two variables. *Simon Stevin*, **12** no. 4, 2005, 589–605.

6. q-Bernoulli and q-Euler Polynomials, An Umbral Approach. *International journal of difference equations* **1** no. 1 2006, 31–80.

7. Les déterminants généralisés de Cauchy. *Advances in Dynamical Systems and Applications*.**1** no. 1 2006, 59–77.

8. q-analogues of some operational formulas. *Algebras Groups Geom.* **23** (2006), no. 4, 354–374.

9. A renaissance for a q-umbral calculus. Elaydi, S. (ed.) et al., Difference equations, special functions and orthogonal polynomials. Proceedings of the international conference, Munich, Germany, July 25–30, 2005. Hackensack, NJ: World Scientific. 178-188 (2007).

10. Some new formulas involving Γ_q functions. *Rendiconti di Padova*,**118** (2007), 159–188.

11. Examples of a q-umbral calculus. *Advan. Stud. Contemp.* Math. **16**, No. 1, 1-22 (2008)

12. Motivation for Introducing q-Complex Numbers. *ADSA Special Volume in Honor of Allan Peterson* 3(1) 107-129 2008.

13. The different tongues of q-calculus Proceedings of Estonian Academy of Sciences. **57** no. 2 81-99 2008

14. q-Stirling numbers, an umbral approach. *Advances in Dynamical Systems and Applications* 3 (2) (251-282) 2008

15. q-calculus as operational algebra. Communications of the Laufen colloquium on science, Laufen, Austria, April 1–5, 2007. Aachen: Shaker. Berichte aus der Mathematik, 7. 1-31 (2007).

16. q-calculus as operational algebra. Proceedings of Estonian Academy of Sciences. no 58, (2) (73-97) 2009.

17. q-deformed matrix pseudo–groups. *Royal Flemish Academy of Belgium* 2010.

18. Sur les polynômes q-Hermite de Cigler. *Algebras Groups Geom.* 27, 121-142 2010

19. Die Jacobi–Gudermann–Glaisher elliptischen Funktionen nach Heine. *Hadronic J.* no 33, 273-302 2010.

20. Multiple q-hypergeometric transformations involving q-integrals, Proceedings of the 9th Annual Conference of the Society for Special Functions and their Applications (SSFA) 9 2010, 91-99.

21. Zur Theorie der Γ_q-Funktion. *Proceedings Jangjeon Math. Soc.* 14 2011, 91-113

22. q-analogues of general reduction formulas by Buschman and Srivastava and an important q-operator reminding of MacRobert. Demonstratio Mathematica No. 2 Vol.44 2011, 285-296

23. On certain generalizations of q-hypergeometric functions of two variables International Journal of Mathematics and computation 16 2012, 1-27.

24. Convergence aspects for q-Lauricella functions 1. Adv. Studies Contemp. Math. 22 (1), 2012, 35-50.

25. q-analogues of triple series reduction formulas due to Srivastava and Panda with general terms ADSA 7, No 1 (2012), 41-55.

26. A comprehensive treatment of q-calculus. Birkhäuser 2012

27. q-Leibniz functional matrices with applications to q-Pascal and q-Stirling matrices. Adv. Studies Contemp. Math. 22 (4), 537-555 2012

28. On the character of q-quadratic transformations. *International journal of difference equations* 7 (2) 2012, 139-150.

29. q-Pascal and q-Wronskian matrices with implications to q-Appell polynomials. J. discrete math. 2013

30. q-functions of many variables in the spirit of Whipple and Srivastava. Proc. Jangjeon Math. Soc. 16 (1) 2013.

31. Multiple q-hypergeometric transformations involving q-integrals, Proceedings of the 9th Annual Conference of the Society for Special Functions and their Applications (SSFA) **2010***9*, 91-99.

32. On the q-analogues of Srivastava's triple hypergeometric functions. Axioms 2(2), 85-99, 2013

33. An umbral approach to find q-analogues of matrix formulas. Linear Algebra and its Applications 439 (2013), no. 4, 1167–1182.

34. Convergence aspects for q–Appell functions I. J. Indian math. soc. 81 no. 1-2 (2014), 67-77

35. Decomposition formulas for triple q-hypergeometric functions. Int. J. Comb. 2014, Article ID 712321, 14 p. (2014).

36. Faktorisierungen von q-Pascalmatrizen. Algebras Groups Geom. 31, No. 4, 387-405 (2014).

37. On ordinary, linear q-difference equations, with applications to q-Sato theory J. Oper. 2015, Art. ID 824549, 8 pp.

38. A solid Foundation for q-Appell Polynomials. ADSA 10 2015, 27-35

39. On certain generalized q-Appell polynomial expansions Ann. Univ. Marie Curie, Sect. A 68, No. 2, 27-50 (2015).

40. Convergence Aspects for Generalizations of q-Hypergeometric Functions. Axioms 2015

41. On elliptic and hyperbolic modular functions and the corresponding Gudermann Peeta functions Axioms 2015