

Personalialia of Peter Beelen

Full name: Pieter Hendrik Turdus Beelen

Date and place of birth: 5 May 1973, Kampen (The Netherlands)

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Education and scientific career of Peter Beelen

September 1985 - August 1991: secondary school (Johannes Calvijn Lyceum Kampen, The Netherlands)

September 1991 - August 1997: study mathematics at the University of Utrecht (The Netherlands)

August 1997: master's degree mathematics (cum laude) at the University of Utrecht; master's thesis on algebraic-geometric coding theory; supervisor: Prof. dr. F. Oort

September 1997 - August 2001: Ph.D. study mathematics at the Technical University of Eindhoven (The Netherlands); supervisors: Prof. dr. ir. H.C.A. van Tilborg and dr. G.R. Pellikaan

September 2001: Ph.D. degree mathematics at the Technical University of Eindhoven (title Ph.D. thesis: Algebraic geometry and coding theory)

October 2001 - August 2003: postdoc mathematics at the Technical University of Eindhoven and the University of Essen (Germany)

September 2003 - August 2004: postdoc mathematics at the University of Essen

October 2004 - January 2007: assistant professor in coding theory at the Technical University of Denmark (Denmark)

February 2007 - present: associate professor in algebraic coding theory at the Technical University of Denmark

Substitute head of the discrete mathematics research group (January 2010 - June 2010).

Leader of the Ph.D. school of DTU-mathematics and member of the management group of DTU-mathematics (January 2012 - December 2012).

Vice-leader of the Ph.D. school of the department of applied mathematics and computer science at DTU (January 2013 - present).

Head of the mathematics section in the department of applied mathematics and computer science at DTU (January 2013 - present).

Attended conferences/workshops and visited universities

June 1998: IEEE Information Theory Workshop (Killarney, Ireland). Title of given talk: "On the Newton-polygon of a polynomial".

October 1998: Visit to the University of Essen (Germany). Title of given talk: "The Newton-polygon and the genus of a plane curve".

13-16 December 1998: Winter school on Coding and Information Theory (Ebeltoft, Denmark). Title of given talk: "Trinomial curves with many rational points".

7-11 June 1999: EIDMA mini-course "Quaternary codes and sequences" given by prof. P.V. Kumar (Eindhoven, The Netherlands).

August 1999: Conference "Geometric and algebraic Combinatorics" (Oisterwijk, The Netherlands).

October 1999: EIDMA lustrum congress (Mierlo, The Netherlands). Title of given talk: "Constructing AG-codes".

May 2000: EIDMA minicourse "Design and analysis of block ciphers" given by prof. J.L. Massey (Eindhoven, The Netherlands).

May 2000: Workshop on Coding theory (Oberwolfach, Germany).

July 29-August 4 2000: Summer school on Curves and abelian varieties over finite fields and their applications (Anogia, Crete). Title of given talk: "Codes from plane curves of type 2".

May 2001: Sixth International Conference on Finite Fields and Applications (Oaxaca, Mexico). Title of given talk: "Pseudo-random sequences from elliptic curves".

October 2001: EIDMA-symposium (Oostende, Belgium). Title of given talk: "Division rings allowing no anti-automorphisms".

26-30 November 2001: participated in EIDMA-Stieltjesweek "Algoritmen in de getaltheorie" (Leiden, The Netherlands).

11-16 August 2002: Participated in the EIDMA conference "Geometric and Algebraic Combinatorics 2" (Oisterwijk, The Netherlands).

May 2003: 9th meeting of Arithmetic, Geometry and Coding Theory (AGCT-9) (Luminy, France). Title of given talk: "On towers of function fields defined over finite fields".

September 2003: Visit to the Technical University of Eindhoven (The Netherlands). Title of given talk: "An application of graph theory in the theory of towers of algebraic function fields".

23 September 2003: Visit to the Technical University of Darmstadt (Germany). Title of given talk: "Rekursiv definierte Türme algebraischer Funktionenkörper und Graphentheorie (Recursive towers of algebraic function fields and graph theory)".

8-9 October 2003, participated in Workshop Mathematics of Discrete Logarithms, Institute for Experimental Mathematics, Essen, Germany.

November 2003: Visit to Sabanci University (Istanbul, Turkey). Titles of given talks: "Pseudorandom sequences from elliptic curves using characters", "The graph of a recursive tower", "A generalization of Lenstra's identity for recursive towers" and "Properties of completely splitting places in recursive towers".

Feb. 2004: Visit to the Technical University of Denmark (Copenhagen, Denmark). Title of given talk: "Towers of function fields with many rational places".

October 2004: Participated in the 8th Nordic Combinatorial Conference (Aalborg University, Denmark).

November 2004: Visit to the University of Duisburg-Essen (Essen, Germany).

Workshop: Finite Fields, theory and applications (Oberwolfach, Germany), 5-11 December 2004: Title of given talk: "Asymptotically good towers and differential equations".

April 2005: Visit to Aalborg University (Aalborg, Denmark). Title of given talk: "Codes from order domains".

June 2005: Tom's birthday symposium (Copenhagen, Denmark). Title of given talk: "The generalized order bound".

June 2005: Workshop on modern coding theory (Aalborg, Denmark).

September 2005: Summer-school ECC-9 (Copenhagen, Denmark). Title of given lecture: "Mathematical background on groups, rings and fields".

12-16 September 2005: ECC-9 2005 (Copenhagen, Denmark). Title of given talk: "Lower bounds for the Minimum Distance of an AG-code".

September 2005: AGCT-10 (Luminy, France). Title of given talk: "Lower bounds for the minimum distance of algebraic geometry codes".

26 August – 5 September 2006: NATO ASI on Coding and Analysis of Multiple Access Channels (Budapest, Hungary).

19 September 2007: Mini-workshop on error correcting codes and network coding, (Aalborg university, Denmark). Title of talk (invited speaker) "Decoding folded codes using Hensel lifting".

5-9 November 2007: 11th meeting on Arithmetic, Geometry, Cryptography and Coding Theory (AGCT-11), CIRM (on the campus of Luminy), Marseilles, France. Title of given talk: "Towards the Galois closure of a tower".

16-21 December 2007: visit university of Ulm. Title of given talk: "Decoding AG-codes".

29 February– 2 March 2008: Weekend of the European Mathematical Society (Copenhagen, Denmark). Title of given talk (invited speaker): "Decoding folded codes".

9-10 June 2008, Workshop on Computations on Curves for Crypto and Coding (C4), Ecole polytechnique, Palaiseau, France. Title of given talk (invited): "A syndrome formulation of the decoding step".

30 June-8 July 2008, visit to the Ecole Polytechnique Federale de Lausanne (EPFL). Title of given talk: "Interpolation and syndromes".

15-18 September 2008: Second International Castle Meeting on Coding Theory and Applications (2ICMCTA), Medina del Campo, Spain. Title of given talk: "A Syndrome formulation of the interpolation step in the Guruswami-Sudan algorithm."

30 March-3 April 2009, Arithmetic, Geometry, Cryptography and Coding Theory (AGCT 12, CIRM, Marseilles, France). Title of given talk: "Generalized Joyner Codes".

4 April 2009-10 April 2009: visit CWI, Amsterdam, the Netherlands.

8-12 June 2009, 18th Symposium on Applied algebra, Algebraic algorithms and Error Correcting Codes (AAECC-18, Tarragona, Spain).

3-8 August 2009, XVIII Latin American Algebra Colloquium (Sao Pedra, Brazil). Title of given talk (invited) : "Weight of codewords from evaluation codes".

25-29 September 2009, Workshop on Sequences, Codes and Curves (Antalya, Turkey).

10-13 May 2010: visit CWI, Amsterdam, the Netherlands.

17-18 May 2010: The Claude Shannon Institute Workshop on Coding and Cryptography, (Cork, Ireland). Title of given talk (invited) : "List decoding algebraic geometry codes with Alekhovich's algorithm"

18-22 October 2010: visit CWI, Amsterdam, the Netherlands.

18-19 November 2010: RISC/Intercity number theory seminar on Crypto, Coding and Geometry, (Amsterdam, The Netherlands). Title of given talk (invited) : "Obtaining information about explicit towers using their modular interpretation"

5-25 January 2011: visit IIT Bombay in Mumbai, India. Title of given talks (invited) : "An introduction to the theory of towers of function field 1", "An introduction to the theory of towers of function field 2", "New codes from Grassmann varieties". The last of these talks was given in the university of Pune, India.

11-15 April 2011: WCC (Paris, France). Contributed (together with D. Ruano) with the paper: "Bounding the number of points on a curve using a generalization of Weierstrass semigroups".

6-10 June 2011: Toric geometry and applications (KU Leuven, Belgium). Invited talk: "Applications of toric varieties in coding theory".

29th July 2011: Brazilian Colloquium of Mathematics 2011 (IMPA Rio de Janeiro, Brazil). Invited talk: "Recursively defined towers of function fields".

14th-27th November 2011: visit to Sabanci university as well as participation in a workshop on towers of function fields. Given talk: "List-decoding of RS-codes".

22th-27th January 2012: visit to Ecole Polytechnique (INRIA), Paris, France. Given talk: "Affine Grassmann codes".

23th-24th February 2012: Workshop Towers of Function Fields, Istanbul, Turkey. Given talk (invited): "Explicit towers over non-prime finite fields III".

9th-11th May 2012: Workshop CBC (code-based cryptography), Kgs. Lyngby, Denmark. Given talk (invited): "Algebraic decoding of algebraic codes".

21st-26th May 2012: Visit ECNU (east china normal university), Shanghai, China. Given talk (invited, 21st may): "Towers of function fields".

23rd May 2012: Visit Jiao Tong University, Shanghai, China. Given talk (invited): "On the Guruswami–Sudan list decoder".

4th-7th March 2013: Workshop: From Modern Coding Theory To Postmodern Coding Theory, Kyusyu University (Institute of Mathematics for Industry), Fukuoka, Japan. Given talk (invited): "Affine Grassmann codes: an overview".

8th-12th April 2013: Workshop: Visit ECNU (east china normal univeristy), Shanghai, China. Given talk (invited, 8th of April): "Affine Grassmann codes: an overview".

13th-17th May 2013: Teacher of the course "Towers of function fields" as part of the school "Mathematics of Information-Theoretic Cryptography" which took place at the Lorentz Center in Leiden.

3rd-7th June 2013: Conference AGCT-14. Given talk (invited): "Modular towers obtained using Drinfeld modules".

7th-12th July 2013: Conference ISIT, Istanbul, Turkey (coauthor of the paper "On the dimension of graph codes with Reed–Solomon component codes" presented by Ph.D. Fernando Pinero).

18th-19th July: Workshop "Algebraic Curves and Cryptography", University of Oldenburg, Germany. Given talk (invited): Explicit asymptotically good towers of function fields: an overview.

29th July-1st August 2013: Workshop at Klitgaarden, Skagen on AGINCC. Given talk: "Differential analysis of the CUBE-cipher."

4th-7th November 2013: Research Visit Sabanci University, Istanbul, Turkey (host Alp Bassa).

11th-14th November 2013: Workshop (as part of the Special Semester on Applications of Algebra and Number Theory) at RICAM, Linz, Austria. Given talk (invited): "Good towers of function fields".

9th-13th June 2014: Workshop on Function Field Arithmetic in Sirince, Turkey. Given talk (invited): "Good towers over non-prime fields".

14th-17th June 2014: Research visit Bogazici University, Istanbul, Turkey (host Alp Bassa).

30th June 2014: Workshop on Applications of Algebraic Geometry in Secret Sharing and Coding Theory, Aalborg University. Title of given talk "Applications of twisted polynomials".

Teaching portfolio

This teaching portfolio consists of a list of past and current teaching, as well as (when available) student evaluations and teaching material I made.

- Teaching as a student:

1992-1995: student assistant for various courses. Among others several courses in analysis (with a varying audience: mathematicians, physicists and software engineers) and algebra.

- Teaching as a Ph.D. student:

1997-2000: teaching assistant for mathematic courses for construction engineers.

2001: (informal) lecturer for an introductory course in Galois theory.

- Teaching as an assistant professor:

Spring 2005: teaching assistant of course 01016 (Fundamental mathematics for software-engineers). The student evaluation of this course is included.

Fall 2005: teacher (out of two) of course 01039 (Algebra and applications). The student evaluation of this course is included, as well as some teaching material I made.

Spring 2006: designer of the mat-1 project "Cryptology and large numbers". This project was based on an existing project, but altered by me in such a way to encompass the RSA-cryptosystem.

Fall 2006: teacher of course 01039 (Algebra and applications).

- Teaching as an associate professor:

Spring 2007: teacher (out of three) of course 01259 (Coding theory).

Spring 2007: supervisor of the mat-1 project on cryptology.

Fall 2007: teacher of course 01905 (Diplomat).

Spring 2008: supervisor of the mat-1 project on cryptology.

Spring 2008: teacher of course 01905 (Diplomat).

Fall 2008: teacher of course 01906 (Diplomat1).

Spring 2009: designer and supervisor of the mat-1 project "Fejlrettende koder" on coding theory.

Spring 2009: teacher and course-responsible of course 01906 (Diplomat1).

July 13-14 2009, 3 lectures at the university of Valladolid, Soria, as part of the Soria summer school on computational mathematics (S3CM), subject: "Applicable algebra and coding theory".

Fall 2009: teacher and course-responsible of course 01906 (Diplomat1).

Spring 2010: course-responsible of course 01906 (Diplomat1).

Spring 2010: supervisor of the mat-1 project on coding theory.

Fall 2010: course-responsible of course 01906 (Diplomat1).

Fall 2010: teacher(60%) and course-responsible of course 01400 (Error-correcting codes 1).

Spring 2011: supervisor of the mat-1 project on coding theory.

Spring 2011: teacher(50%) and course-responsible of course 01917 (Diskret matematik).

Spring 2011: teacher(50%) and course-responsible of course 01815 (Topics in combinatorics and number theory).

July 11-15 2011: 4 lectures at the KU Leuven (Belgium), as part of the ACGCM summer school.

August 1-5 2011: 5 lectures in Buenos Aires (Argentina), as part of the ELGA summer school.

Fall 2011: teacher(60%) and course-responsible of course 01400 (Error-correcting codes 1).

Fall 2011: teacher(50%) and course-responsible of course 01017 (Diskret matematik 1). Developed new course material for 50% of the course .

Spring 2012: supervisor of the mat-1 project on coding theory.

Spring 2012: teacher of a special course in algebra.

Fall 2012: teacher(50%) and course-responsible of course 01017 (Diskret matematik 1). Continue development of new course material for 50% of the course.

Fall 2012: teacher and course-responsible of course 01018 (Diskret matematik 2: algebra). Development of new course material for the course.

Spring 2013: teacher and course-responsible of course 01405 (Error-correcting codes).

Spring 2013: supervisor of "fagprojektet: Algebraiske normalformer af matricer"

Spring 2013: teacher of a special course in algebra.

Spring 2013: One of 4 teachers of the one-day course "Ph.D. supervision at DTU" offered by DTU for employees (May).

May 13-17 2013: three lectures for the summer school "Mathematics of Information-Theoretic Cryptography" in the Lorentz Center Leiden (The Netherlands).

Fall 2013: teacher(50%) and course-responsible of course 01017 (Diskret matematik 1). Final development of new course material for 50% of the course.

Fall 2013: teacher and course-responsible of course 01018 (Diskret matematik 2: algebra). Continue development of new course material for the course.

Spring 2013: One of 4 teachers of the one-day course "Ph.D. supervision at DTU" offered by DTU for employees (November).

Fall 2013: supervisor of the project/special course: Secure, efficient and reliable two-factor gaze-based remote authentication (taken by student: Kamran Manzoor).

Spring 2014: supervision of bachelor projects Lisa Andersen and Bo Simmende-feldt Schmidt.

Spring 2014: supervision of master project Jacob Kjærsgaard Hansen.

List of relevant diplomas / participation in courses

Diploma for participation in the course Education in University Teaching at DTU (UDTU) (course took place in 2005-2006).

Diploma PID3 (Prøve i Dansk 3), a government issued exam concerning the Danish language (course took place from January 2005 till November 2005, exam passed in December 2005).

Participated in the course "Supervision of PHD students" (1-11-2006).

Participated in the course "Coaching" (5-09-2007) given by Eva Korntved.

Participated in the course "Den optimal forskningsrådsøgning" (2007).

Participated in the course "MUS-leder" (21-2-2008).

Participated in the course "Supervision of PhD students" (3-11-2011).

Participated in the course "First aid, including use of a defibrillator" (4-12-2012).

Participated in the course "DTU's lederprogram (hold 7)" (26-02-2013 till 23-05-2014).

Supervision and miscellaneous

Co-supervisor of Ph.D. student Kristian Brander (January 2007 - March 2007).

Supervisor of Ph.D. student Kristian Brander (April 2007 - January 2010).

Co-supervisor of master student David Møller Hansen (August 2008 - February 2009).

Co-supervisor of master student Johan Sebastian Rosenkilde Nielsen (September 2009 - January 2010).

Supervisor of Ph.D. student Johan Sebastian Rosenkilde Nielsen (July 2010 - July 2013).

Supervisor of Ph.D. student Fernando Pinero (August 2011 - present).

Supervisor of master student Peter Holthe Hansen (July 2012 - December 2012).

Supervisor of Ph.D. student Nhut Nguyen (August 2012 - present).

Supervisor of bachelor student Lisa Andersen (February-June 2014). Title of project "Algebra and geometrical constructions "

Supervisor of bachelor student Bo Simmendefeldt Schmidt (February-June 2014). Title of project "Galois theory and applications"

Discoverer (joint with J. Doumen) of the prime numbers:

$$2^{49207} - 2^{24604} + 1$$

$$2^{85237} + 2^{42619} + 1$$

$$3^{255361} - 3^{127681} + 1$$

(see <http://primes.utm.edu/primes/lists/all.txt>).

List of publications

1. Trinomial curves with many rational points, P. Beelen and R. Pellikaan, IEEE Information Theory Workshop (KILLARNEY, IRELAND Date: JUNE 22–26, 1998), pp. 38–39, 1998.
2. The Newton polygon of plane curves with many rational points, P. Beelen and R. Pellikaan, Designs, Codes and Cryptography, 21, pp. 41–67, 2000.
3. Pseudorandom sequences from elliptic curves, P. Beelen and J. Doumen, Proceedings of Finite Fields and Applications 6, pp. 37–52, 2001.
4. On anti-automorphisms of the first kind in division rings, P. Beelen and R. Gramlich, Proceedings of the AMS 130, pp. 3745–3746, 2002.
5. Graphs and recursively defined towers of function fields, P. Beelen, Journal of number theory 108, pp. 217–240, 2004.
6. On towers of function fields of Artin-Schreier type, P. Beelen, A. Garcia and H. Stichtenoth, Bulletin of the Brazilian Mathematical Society 35, pp. 151–164, 2004.
7. On ramification and genus of recursive towers, P. Beelen, A. Garcia and H. Stichtenoth, Portugaliae Mathematica 62, pp. 231–243, 2005.
8. Asymptotically good towers and differential equations, P. Beelen and I. Bouw, Compositio Mathematica 141, pp. 1405–1424, 2005.
9. On towers of function fields over finite fields, P. Beelen, A. Garcia and H. Stichtenoth, Proceedings of AGCT (2003), pp. 1–19, 2005.
10. Towards a classification of recursive towers of function fields over finite fields, P. Beelen, A. Garcia and H. Stichtenoth, Finite fields and their applications 12, pp. 56–57, 2006.
11. A generalization of the Weierstrass semigroup, P. Beelen and N. Tutas, Journal of pure and applied algebra 207, pp. 243–260, 2006.
12. The order bound for general algebraic geometric codes, P. Beelen, Finite fields and their applications 13, pp. 665–680, 2007.
13. List Decoding using Syndromes, P. Beelen and T. Høholdt, in Algebraic Geometry and its Applications, World Scientific Series on Number Theory and its Applications vol. 5 (eds. J. Chaumine, J. Hirschfeld and R. Rolland), May 2008.
14. The decoding of algebraic geometry codes, P. Beelen and T. Høholdt, Chapter in Advances in Algebraic Geometry Codes, Series on Coding Theory and Cryptology, vol. 5, World Scientific Publishing Co. Pte. Ltd., 2008.

15. A syndrome formulation of the Interpolation Step in the Guruswami-Sudan Algorithm, P. Beelen and T. Høholdt, in Coding Theory and Applications, LNCS 5228 (ed. A.Barbero), pp. 20–32, 2008.
16. Reconstruction of Highly Non Linear S-boxes from Linear Codes, P. Beelen and G. Leander, In: NATO Science for Peace and Security Series - D: Information and Communication Security, Volume 23, pp. 153–159, 2009.
17. Decoding folded codes using Hensel lifting, P. Beelen and K. Brander, Proceedings of workshop D1: Gröbner Bases in Cryptography, Coding Theory, and Algebraic Combinatorics (Linz, Austria 2006), Gröbner bases, coding, and cryptography, pp. 389–394, 2009.
18. The order bound for toric codes, P. Beelen and D. Ruano, Proceedings of AAECC-18 (Tarragona, Spain, 2009), LNCS 5527, Springer, pp. 1–10, 2009.
19. On the construction of Galois towers, A. Bassa and P. Beelen, Proceedings of AGCT-11 (CIRM, Marseilles, France 2007), Contemporary Mathematics, Geometry, Cryptography and Coding Theory 487, pp. 9–20, 2009.
20. Bounds and Constructions of Highly Nonlinear S-boxes, P. Beelen and G. Leander, International Workshop on Coding and Cryptography (WCC), Norway, 2009.
21. A generalization of Baker’s theorem, P. Beelen, Finite Fields and Their Applications 15, pp. 558–568, 2009.
22. Fejlrettende koder, P. Beelen and T. Høholdt, Chapter in: Matematiske horisonter, Svenborgtryk, ISBN: 978-87-643-0453-4, pp. 162–173, 2009.
23. Key-equations for list decoding of Reed–Solomon codes and how to solve them, P. Beelen and K. Brander, Journal of Symbolic Computation 45 (7), pp. 773–786, 2010.
24. Affine Grassmann codes, P. Beelen, S. R. Ghorpade, and T. Høholdt, IEEE Transactions on Information Theory 56 (7), pp. 3166–3176, 2010.
25. The Hasse–Witt invariant in some towers of function fields over finite fields, A. Bassa and P. Beelen, Bulletin of the Brazilian Mathematical Society, New Series 41 (4), pp. 567–582, 2010.
26. Efficient list decoding of a class of algebraic-geometry codes, P. Beelen and K. Brander, Advances in Mathematics of Communication 4(4), pp. 485–518, 2010.
27. The Galois closure of Drinfeld modular towers, A. Bassa and P. Beelen, Journal of number theory 131, pp. 561–577, 2011.

28. A proof of a conjecture by Schweizer on the Drinfeld modular polynomial $\Phi_T(X, Y)$, A. Bassa and P. Beelen, *Journal of number theory* 131, pp. 1276–1285, 2011.
29. Bounding the number of points on a curve using a generalization of Weierstrass semigroups, P. Beelen and D. Ruano, In: *Proceedings of WCC* (Paris, France, 2011), pp. 253–262, 2011.
30. A New Construction of Highly Nonlinear S-boxes, P. Beelen and G. Leander, *Cryptography and Communications*, Volume 4, Number 1, pp. 65–77, 2012 (DOI: 10.1007/s12095-011-0052-4).
31. Duals of affine Grassmann codes and their relatives, P. Beelen, S. R. Ghorpade, and T. Høholdt, *IEEE Transactions on Information Theory*, Volume: 58, Issue: 6, pp. 3843–3855, 2012 (DOI: 10.1109/TIT.2012.2187171).
32. Bilinear relative equilibria of identical point vortices, H. Aref, P. Beelen, and M. Brøns, *Journal of Nonlinear Science*, Volume 22, Issue 5, pp. 849–885, 2012 (DOI: 10.1007/s00332-012-9129-2).
33. On The Distribution of Linear Biases: Three Instructive Examples, M. Abdelraheem, M. Ågren, P. Beelen, G. Leander, *Lecture Notes in Computer Science* 7417 (CRYPTO, Santa Barbare, CA, 2012-08-19/2012-08-23), pp. 50–67, 2012 (DOI: 10.1007/978-3-642-32009-5₄).
34. A closed form expression for the Drinfeld modular polynomial $\Phi_T(X, Y)$, A. Bassa and P. Beelen, *Archiv der Mathematik*, Volume 99, Issue 3, pp. 237–245, 2012 (DOI: 10.1007/s00013-012-0423-x).
35. Bounding the number of points on a curve using a generalization of Weierstrass semigroups, P. Beelen and D. Ruano, *Designs Codes and Cryptography*, Volume 66, Issue 1, pp. 221–230, 2013 (DOI: 10.1007/s10623-012-9685-3).
36. On Rational Interpolation Based List-Decoding and List-Decoding Binary Goppa Codes, J.S.R. Nielsen, P. Beelen, T. Høholdt and Y. Wu, *IEEE Transactions on Information Theory*, Volume 59, Issue: 6, pp. 3269–3281, 2013 (DOI: 10.1109/TIT.2013.2243800).
37. Recent progress in the relative equilibria of point vortices — In memoriam Hassan Aref, P. Beelen, M. Brøns, V. S. Krishnamurthy, M. A. Stremler, *Procedia IUTAM* 7, pp. 3–12, 2013.
38. On the Dimension of Graph Codes with Reed–Solomon Component Codes, P. Beelen, F. Pinero, J. Justesen, T. Høholdt, *IEEE International Symposium on Information Theory Proceedings (ISIT)*, pp. 1227–1231, 2013.
39. Towers of Function Fields over Non-prime Finite Fields, A. Bassa, P. Beelen, A. Garcia and H. Stichtenoth, accepted for publication in *Moscow Mathematical Journal*. (preprint available: arXiv:1202.5922)

40. Good towers of function fields, A. Bassa, P. Beelen and N. Nguyen, in: Algebraic Curves and Finite Fields: Codes, Cryptography, and other Emergent Applications (H. Niederreiter, A. Ostafe, D. Panario, and A. Winterhof, eds.), de Gruyter, Berlin, 2014, pp. 23–40 (preprint available: arXiv:1309.4951).
41. Galois towers over non-prime finite fields, A. Bassa, P. Beelen, A. Garcia and H. Stichtenoth, *Acta Arithmetica* 164.2, pp. 163–179, 2014 (preprint available: arXiv:1311.1779).
42. An Improvement of the Gilbert–Varshamov Bound over Non-prime Fields, A. Bassa, P. Beelen, A. Garcia and H. Stichtenoth, *IEEE Trans. Inf. Theory*, Volume 60, Issue 7, pp. 3859–3861, 2014 (DOI: 10.1109/TIT.2014.2316531).
43. Linear Codes associated to Determinantal Varieties, P. Beelen, S. R. Ghorpade and S. Ul Hasan, extended abstract accepted for presentation in ACCT Kaliningrad 2014.

Scientific committees

- Program committee WCC 2011, April 11-15, 2011, Paris, France.
- Scientific committee 3rd International Castle Meeting on Coding Theory and Applications, September 11-15, Barcelona, Spain.
- Defence committee Ph.D. student Julia Borghoff, DTU, 4 February, 2011.
- Defence committee Ph.D. student Valerie Gauthier, DTU, 30 November 2011.
- Defence committee Ph.D. student Sabine Kampf, Ulm university, Germany, 5 March 2012.
- Program committee workshop code-based cryptography, Kgs. Lyngby, Denmark, 9-11 May 2012.
- Member of the Ph.D. committee of Guillaume Quentin, INRIA, France, 22 November 2012.
- Member of the YACC 2012 program committee.
- Chairman of the working group: teaching of introductory mathematics for diplom-engineering students (in connection to the merge of DTU and IHK), 2012.
- Member of the programme committee for the 14th IMACC'13 conference of Cryptography and Coding, 2013.
- External examiner of the Ph.D. thesis "On Automorphism Groups of Global Function Fields" by Ma Liming (supervisor Chaoping Xing, NTU, Singapore), 2013.
- Main responsible for the development of the new introductory mathematics courses for diplom-engineering students (in connection to the merge of DTU and IHK), (September 2013-present).
- Defence committee Ph.D. student Michaela Eskin-Hämmerle, Ulm university, Germany, 20 February 2014.