

CURRICULUM VITAE

(September 16, 2021)

Hjalmar Rosengren

Personal Details

Born: April 28, 1972, Halmstad, Sweden

Citizenship: Swedish

Employment

2011–: Professor (Biträdande professor), Chalmers University of Technology and University of Gothenburg.

2004–2011: Associate Professor (Docent), Chalmers University of Technology and University of Gothenburg.

2000–2004: Assistant Professor (Forskarassistent), Chalmers University of Technology and University of Gothenburg.

1999–2000: Post-doc, Technische Universiteit Delft.

Host: Professor Erik Koelink.

1994–1999: PhD student, Lund University.

Advisor: Professor Jaak Peetre.

1992–1994: Teaching assistant, Lund University.

Research Experience

Area of research: Special functions, especially in relation to other fields, such as representation theory, mathematical physics, number theory and combinatorics.

Publications: 47 research papers accepted for publication, 14 coauthors.

Teaching Experience

2000–, Chalmers University and University of Gothenburg. Lecturer and teaching assistant at various mathematics courses.

Responsible for the courses:

Linear algebra and calculus in several variables (Mechanical Engineering), 2001.

Calculus in one variable (Mechanical Engineering), 2001–2005.

Ordinary differential equations, 2007, 2009.

Transforms and differential equations (Mechanical Engineering), 2008.

Fourier analysis, 2008–2013.

Linear algebra (Civil Engineering), 2010–2012.

Calculus (Software Engineering), 2014.

Advanced linear and multilinear algebra, 2015, 2017.

Representation theory, 2019, 2021.

Perspectives in mathematics, 2021.

I have also lectured at the courses:

Mathematics for teachers grade 4–6, 2017–2019 (twice each year). One of several lecturers, partly responsible for the examination.

Transforms, signals and systems (Computer Science and Engineering), 2020. One of two lecturers.

1992–1999, Lund University. Teaching assistant at various mathematics courses.

Administrative Experience

- 2004–2009, Director of Studies for the PhD programme in mathematics at Chalmers University and University of Gothenburg.
- 2014–2016, Member of Steering group, Mathematics, Chalmers University and University of Gothenburg.
- 2015–2016, Head of Mathematical Analysis Unit, Chalmers University and University of Gothenburg.
- 2012–2018, Member of the Academic Appointments Board, Faculty of Science, University of Gothenburg.
- 2018–, Coordinator for the master’s programme Mathematical Sciences, University of Gothenburg.
- 2019–, Head of unit, Division for Analysis and Probability Theory, Chalmers University and University of Gothenburg.

Experience as Thesis Advisor

- Assistant advisor to Yvette van Norden, Technische Universiteit Delft, PhD 2005.
- Assistant advisor to Henrik Seppänen, University of Gothenburg, PhD 2007.
- Assistant advisor to Jonas Hartwig, Chalmers University, PhD 2008.
- Advisor to Mehdi Hormozi, University of Gothenburg, PhD 2015.
- Advisor to Linnea Hietala, University of Gothenburg, PhD 2021.

Host for Post-docs

- Wolter Groenevelt, 2004–2005.
- Jules Lamers, 2016–2018.

Examiner of Theses

- Opponent, PhD thesis defence of Tsehaye K. Araaya, Uppsala University, 2003.
- Opponent, PhD thesis defence of Farrokh Atai, Royal Institute of Technology, 2016.
- Committee member, PhD thesis defence of Petter Brändén, University of Gothenburg, 2005.
- Committee member, PhD thesis defence of Yvette van Norden, Delft University of Technology, 2005.
- Committee member, PhD thesis defence of Tanja Bergkvist, Stockholm University, 2007.
- Committee member, PhD thesis defence of Martin Hallnäs, Royal Institute of Technology, 2007.
- Committee member, PhD thesis defence of Jules Lamers, Utrecht University, 2016.
- Committee member, PhD thesis defence of Jacob Winding, Uppsala University, 2017.
- Committee member, PhD thesis defence of Rebecca Lodin, Uppsala University, 2021.
- Examiner, master’s thesis of Jimmy Aronsson, University of Gothenburg, 2018.
- Examiner, master’s thesis of Seamus Albion, University of Queensland, 2020.
- Examiner, master’s thesis of Zhi Zhang, University of Gothenburg, 2021.
- Examiner for ten bachelor’s theses, Chalmers University and University of Gothenburg, 2013.

Professional Education

- Leadership development program for young research leaders, Chalmers University, 2007.
- Supervision of Research (3 ECTS-credits), Chalmers University, 2010.
- Handledarforum, a network program for exchanging thoughts around leadership, communication and supervision, Chalmers University, 2012.
- Diversity and inclusion for learning in higher education (2 ECTS-credits), Chalmers University, 2021.
- University teaching and learning (2.5 ECTS-credits), Chalmers University, 2021.

Awards

Nils-Erik Fremberg Award for excellent studies in mathematics, Lund Mathematical Society, 1992.
Gyllene Pekkinnen (Best lecturer of the year at Mechanical Engineering), Maskinteknologisektionens utbildningsutskott, Chalmers University, 2004.
Ruth and Nils-Erik Stenbäck Award, Finnish Society of Sciences and Letters, 2020.

Major Research Grants

2005–2007, Elliptic quantum groups and elliptic hypergeometric series, Swedish Research Council, SEK 1,419,000.
2008–2010, Elliptic quantum groups and elliptic hypergeometric series, Swedish Research Council, SEK 1,800,000.
2011–2013, Algebraic and combinatorial analysis of elliptic lattice models, Swedish Research Council, SEK 2,153,000.
2016–2017, The mathematics of superconformal indices, Knut and Alice Wallenberg Foundation, SEK 1,600,000.
2016–2019, Mathematics of supersymmetric lattice models and supersymmetric quantum field theories, Swedish Research Council, SEK 3,200,000.
2019, Elliptic integrable systems, special functions and quantum field theory, Conference grant, Swedish Research Council, SEK 200,000.
2021–2024, Combinatorics of elliptic lattice models, Swedish Research Council, SEK 3,200,000.

Editorial Work

Editor, Proceedings of the Workshop “Elliptic Integrable Systems, Isomonodromy Problems, and Hypergeometric Functions”, published as a special issue of SIGMA, 2009.
Member of editorial board, ISRN Algebra (2011–2012)
Member of editorial board, Journal of Discrete Mathematics (2012–2016)
Member of editorial board, The Ramanujan Journal (2020–)

Acted as a Referee for

Abstract and Applied Analysis
Acta Mathematica Sinica
Advances in Applied Mathematics
Advances in Mathematics
African Diaspora Journal of Mathematics
Algebras and Representation Theory
Annals of Combinatorics
Applied Mathematics Letters
Bulletin of the Iranian Mathematical Society
Bulletin of the Malaysian Mathematical Sciences Society
Canadian Journal of Mathematics
Colloquium Mathematicum
Compositio Mathematica
Computers & Mathematics with Applications
Communications in Mathematical Physics
Constructive Approximation
Duke Mathematical Journal

Electronic Journal of Combinatorics
Electronic Transactions on Numerical Analysis
Glasgow Mathematical Journal
Indagationes Mathematicae
Integral Transforms and Special Functions
International Journal of Number Theory
International Mathematics Research Notices
Israel Journal of Mathematics
ISRN Algebra
Journal of Approximation Theory
Journal of Combinatorial Theory A
Journal of Computational and Applied Mathematics
Journal of Difference Equations and Applications
Journal of the European Mathematical Society
Journal of Integrable Systems
Journal of the London Mathematical Society
Journal of Mathematical Analysis and Applications
Journal of Mathematical Physics
Journal of Nonlinear Mathematical Physics
Journal of Physics A
Journal of Statistical Mechanics: Theory and Experiment
Letters in Mathematical Physics
Mathematical Methods in the Applied Sciences
Mathematical Notes
Mathematics
Methods and Applications of Analysis
Michigan Mathematical Journal
Proceedings of the Estonian Academy of Sciences
Proceedings of the London Mathematical Society
Quarterly Journal of Mathematics
The Ramanujan Journal
Selecta Mathematica
South East Asian Journal of Mathematics and Mathematical Sciences
Symmetry
Symmetry, Integrability and Geometry: Methods and Applications
Utilitas Mathematica

Acted as a Reviewer for

Mathematical Reviews
Zentralblatt MATH

Organization of Conferences

Member of organizing and scientific committee, Elliptic Integrable Systems, Isomonodromy Problems, and Hypergeometric Functions, Bonn, July 21–25, 2008.

Co-organized a special session on Quantum algebra, AGMP-6 Workshop (Algebra Geometry Mathematical Physics), Tjärnö, October 25–30, 2010.

Member of scientific committee, Elliptic Integrable Systems and Hypergeometric Functions, Leiden, July 15–19, 2013.

Member of organizing committee and scientific committee, Elliptic Integrable Systems, Special Functions and Quantum Field Theory, Stockholm, June 16–20, 2019.

Extended Academic Visits

University of Wisconsin, Madison, September 10 – October 17, 2002. Host: Paul Terwilliger.

Institut Mittag-Leffler, Djursholm, October 2 – December 20, 2003. Programme: Noncommutative Geometry.

Research Institute for Mathematical Sciences, Kyoto, September 7–26, 2004. Project: Method of Algebraic Analysis in Integrable Systems.

Isaac Newton Institute, Cambridge, March 16 – May 5, 2009. Programme: Discrete Integrable Systems.

Australian National University, Canberra, November 22 – December 16, 2011. Host: Vladimir Bazhanov.

Galileo Galilei Institute, Florence, May 18–22 and June 22 – July 3, 2015. Programme: Statistical Mechanics, Integrability and Combinatorics.

Simons Center for Geometry and Physics, Stony Brook, March 14–25, 2016. Programme: Statistical Mechanics and Combinatorics.

Invited Lecture Series

58th Séminaire Lotharingien de Combinatoire, St. Germain au Mont d’Or, March 19–21, 2007. 3×60 minutes lecture series: “Applications of pfaffians in number theory and combinatorics”.

OPSF-S6: Summer School on Orthogonal Polynomials and Special Functions, College Park, July 11–15, 2016. 6×50 minutes lectures and 3×50 minutes exercise classes: “Elliptic hypergeometric functions”.

Conference Talks

Mini-Conference on Symmetric Domains and Hankel Operators III, Lund, February 23, 1996. 45 minutes talk: “Quantum Dzhrbashyan spaces and quasi-commuting homogeneous coordinates”.

Workshop on Special Functions and Group Theory, Amsterdam, September 4, 1997. 60 minutes talk: “Coupling coefficients and multivariable orthogonal polynomials”.

AMS Summer Conference: q -Series, Combinatorics and Computer Algebra, Mt Holyoke College, Massachusetts, June 21–25, 1998. 30 minutes talk: “A new quantum algebraic interpretation of the Askey–Wilson polynomials”.

International Workshop on Special Functions – Asymptotics, Harmonic Analysis and Mathematical Physics, Hong Kong, June 21–25, 1999. 30 minutes talk: “Coupling coefficients and multivariable orthogonal polynomials”.

Twente Conference on Lie Groups, Enschede, December 20–22, 1999. 60 minutes talk: “Points of the $SL(2)$ quantum group and dynamical Yang–Baxter equations”.

Special Functions 2000: Current Perspective and Future Directions, Tempe, Arizona, May 29 – June 9, 2000. 60 minutes talk: “The dynamical Yang–Baxter equation and Wigner $9j$ -symbols”.

Quantum Groups and Special Functions, Delft, April 9, 2001. 60 minutes talk: “Special functions and dynamical quantum groups”.

Applications of Dynamical Quantum Groups and the KZ equation, Amsterdam, September 11–12, 2001. Two 60 minutes talks: “Points of the $SL(2)$ quantum group and the dynamical Yang–Baxter equation”, “The $SL(2)$ dynamical quantum group”.

Quantum Groups and Integrable Systems, Prague, June 20–22, 2002. 30 minutes talk: “Points of the $SL(2)$ quantum group”.

AMS Sectional Meeting, Special Session on Combinatorics and Special Functions, Madison, Wisconsin, October 12–13, 2002. 20 minutes talk: “Elliptic hypergeometric functions on root systems”.

AMS Sectional Meeting, Special Session on q -Series in Number Theory and Combinatorics, Baton Rouge, Louisiana, March 14–16, 2003. 20 minutes talk: “Reduction formulas for Karlsson–Minton type hypergeometric functions”.

Seventh International Symposium on Orthogonal Polynomials, Special Functions and Applications, Copenhagen, August 18–22, 2003. 20 minutes talk: “Elliptic hypergeometric series on root systems”.

Workshop on Special Functions, Representation Theory and Applications, Amsterdam, August 25–27, 2003. 50 minutes talk: “Elliptic quantum groups and elliptic hypergeometric series”.

International Workshop on Special Functions, Orthogonal Polynomials, Quantum Groups and Related Topics, Bexbach, October 19–21, 2003. 40 minutes talk: “An elementary approach to the Frenkel–Turaev hierarchy of $6j$ -symbols”.

Symmetries and Integrability of Difference Equations: EuroConference on Analytic Difference Equations, Special Functions and Quantum Models on the Lattice, Helsinki, June 19–24, 2004. 20 minutes talk: “Sklyanin algebra invariant integration on the torus”.

Non-Commutative Geometry and Representation Theory in Mathematical Physics, Karlstad, July 5–10, 2004. 30 minutes talk: “Sklyanin invariant integration on the torus”.

54th Séminaire Lotharingien de Combinatoire, Lucelle, April 4–6, 2005. 25 minutes talk: “Elliptic pfaffians and sums of triangular numbers”.

Workshop of Combinatorics on q -Series and Partitions, Lyon, January 5–6, 2006. 60 minutes talk: “ Q -polynomials and q -polynomials”.

Elliptic Integrable Systems, Isomonodromy Problems, and Hypergeometric Functions, Bonn, July 21–25, 2008. 60 minutes talk: “An elliptic Izergin–Korepin identity, with combinatorial applications”.

Special Functions and Quantum Groups, Amsterdam, December 11–12, 2008. 60 minutes talk: “An elliptic Izergin–Korepin identity, with applications to three-coloured chessboards”.

10th International Symposium on Orthogonal Polynomials, Special Functions and Applications, Leuven, July 20–24, 2009. 60 minutes plenary talk: “Three-coloured chessboards and related special polynomials”.

Combinatorics and Mathematical Physics, Brisbane, July 12–14, 2010. 30 minutes talk: “The three-colour model with domain wall boundary conditions”.

Annual Statistical Mechanics Meeting, Melbourne, December 1–2, 2011. 20 minutes talk: “Symmetric polynomials related to the eight-vertex model, affine Lie algebras and Painlevé VI”.

6th European Congress of Mathematics, Satellite thematic session on Mathematical Physics and Developments in Algebra, Kraków, July 3–6, 2012. 40 minutes talk: “From three-coloured chessboards to Painlevé VI”.

24th International Conference on Formal Power Series and Algebraic Combinatorics, Nagoya, July 30 – August 3, 2012. 60 minutes invited talk: “From alternating sign matrices to Painlevé VI”.

Random Tilings, Stony Brook, February 18–22, 2013. 60 minutes talk: “Special polynomials related to elliptic lattice models and Painlevé VI”.

Elliptic Integrable Systems and Hypergeometric Functions, Leiden, July 15–19, 2013. 45 minutes talk: “Felder’s elliptic quantum group and elliptic hypergeometric series on the root system A_n ”.

Dick Askey's 80th, Madison, December 6–7, 2013. 30 minutes talk: "Askey–Wilson polynomials and the tetrahedron index".

Lattice Models, Exact Results and Combinatorics, Florence, May 18–22, 2015. 60 minutes talk: "Towards combinatorics of elliptic lattice models".

Six-Vertex Model, Dimers, Shapes and All That, Stony Brook, March 14–18, 2016. 45 minutes talk: "Elliptic pfaffians and solvable lattice models".

Mini-Workshop on Quantum Integrable Models, Utrecht, May 31, 2016. 30 minutes talk: "The three-colour model with domain wall boundary conditions".

Elliptic Hypergeometric Functions in Combinatorics, Integrable Systems and Physics, Vienna, March 20–24, 2017. 50 minutes talk: "Basic hypergeometry and biorthogonal functions related to supersymmetric dualities".

International Conference on Special Functions: Theory, Computation, and Applications, Hong Kong, June 5–9, 2017. 30 minutes talk: "Askey–Wilson polynomials and lozenge tilings of a hexagon with a triangular hole".

Elliptic Integrable Systems, Special Functions and Quantum Field Theory, Stockholm, June 16–20, 2019. 30 minutes talk: "Correlations for the XYZ spin chain and Painlevé VI".

15th International Symposium on Orthogonal Polynomials, Special Functions and Applications, Hagenberg, July 22–26, 2019. 30 minutes talk: "Multidimensional matrix inversions and elliptic hypergeometric series on root systems".

Integrable Systems and Automorphic Forms, Sochi, February 24–28, 2020. 30 minutes talk: "Correlations of the XYZ spin chain and modular tau functions of Painlevé VI".

International Conference on Special Functions & Applications, Lucknow (online), December 22–23, 2020. 30 minutes talk: "On the Kanade–Russell identities".

Joint Mathematics Meetings, online, January 6–9, 2021. 30 minutes talk: "On the Kanade–Russell identities".

Participation in Conferences and Courses (not speaker)

Course on Bergman spaces, Trondheim, September 17–27, 1996.

Bergman Spaces and Related Topics, Trondheim, September 29 – October 2, 1996.

CIMPA School in Analysis and Geometry on Complex Homogeneous Domains and Related Topics, Beijing, September 15–30, 1997.

Mathematical and Physical Aspects of Quantum Groups, Bayrischzell, April 27 – May 1, 2000.

Applications of the Macdonald Polynomials, Cambridge, April 17–20, 2001.

Abel Bicentennial Conference, Oslo, June 3–7, 2002.

Euro Summer School in Orthogonal Polynomials and Special Functions, Leuven, August 12–16, 2002.

Workshop on Jack, Hall–Littlewood and Macdonald Polynomials, Edinburgh, September 23–26, 2003.

Autumnal Meeting of Mathematical Society of Japan, Special Session on Infinite Integrable Systems, Sapporo, September 19–20, 2004.

Recent Advances in Quantum Integrable Systems, Annecy-le-Vieux, September 6–9, 2005.

Sklyanin Algebras and Beyond, Leeds, December 16–17, 2005.

18th International Conference on Formal Power Series & Algebraic Combinatorics, San Diego, June 19–23, 2006.

Statistical-Mechanics and Quantum-Field Theory Methods in Combinatorial Enumeration, Cambridge, April 21–25, 2008.

Quantum Discrete Integrable Systems, Cambridge, March 23–27, 2009.

Workshop on Orthogonal Polynomials, Hankel and Jacobi matrices, Copenhagen, August 26–28, 2009.

Exactly Solvable Models in Statistical Physics, Brisbane, July 14–17, 2010.

AGMP-6 Workshop (Algebra Geometry Mathematical Physics), Tjärnö, October 25–30, 2010.

q -Series 2011: An International Conference on q -Series, Partitions and Special Functions, Statesboro, March 14–16, 2011.

Random Interfaces and Integrable Probability, Florence, June 22–26, 2015.

81st Séminaire Lotharingien de Combinatoire, Strobl, September 9–12, 2018.

Hypergeometry, Integrability and Lie Theory, Leiden (online), December 7–11, 2020.

Seminars and Colloquium Talks

Australian National University, Canberra

Chalmers University of Technology / University of Gothenburg

ETH, Zürich

Isaac Newton Institute, Cambridge

Kobe University

Linköping University

Linnaeus University, Växjö

Lund University / Lund Institute of Technology

Nordita, Stockholm

Ohio State University

Osaka University

Research Institute for Mathematical Sciences, Kyoto

Royal Institute of Technology, Stockholm

Technical University of Delft

University of Amsterdam

University of Copenhagen

University of Karlstad

University of Stockholm

University of Tokyo

University of Vienna / Vienna University of Technology

University of Wisconsin, Madison

Uppsala University