SHORT CV OF GERARD VAN DER GEER

Name: Gerard B.M. van der Geer.

Birth date and place: August 27, 1950, Voorhout, The Netherlands.

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Present Position: Emeritus Professor of Algebra at the University of Amsterdam. Visiting Profesor at Yau Mathematical Sciences Center, Tsinghua University, Beijing.

Research area: Algebraic Geometry.

University education and employment: :

Study of Mathematics at University of Leiden; 1973 doctoraalexamen (M.Sc.);

1974-77 Ph.D. student at University of Leiden; employed by the Dept of Mathematics, University of Leiden.

1977, June 15 Doctoral Degree at the University of Leiden; Advisor A.H.J.M. van de Ven

1977-1978 Postdoc at Sonderforschungsbereich für Theoretische Mathematik, University of Bonn, Germany

1978-1987 researcher at Department of Mathematics, University of Amsterdam

1987-2017 Professor of Algebra, Dept of Mathematics, University of Amsterdam

2017–present Emeritus Professor, Dept of Mathematics, University of Amsterdam

2013-present Visiting Professor, Yau Mathematical Sciences Center, Tsinghua University, Beijing.

2017-2023 Visiting Profesor Luxembourg University.

Long term visits

Spring 1981 Università di Pisa, Italia; 1983 Max-Planck-Institut, Bonn; Winter 1984 Mittag-Leffler Institute, Stockholm; Fall 1986 Mathematical Sciences Research Institute, Berkeley; Spring 1987 Harvard University; Spring 1988 Università di Roma, I, Italia; Fall 1989 Universität Mainz, Germany; Winter 1989 University of Kyoto, Japan 1998/99 Max-Planck-Institut,Bonn, Spring 1996 University of Kyoto, Japan; Spring 1999 University of Athens, Georgia, USA; Spring 2001 University of Tokyo, Japan; Summer 2006 University of Iraklion, Greece; Spring 2007 Mittag-Leffler Institute, Sweden; Autumn 2008 Scuola Normale, Pisa, Italy; Autumn 2012 MSC Tsinghua University, Beijing, China. Autumn 2014 MSC Tsinghua University, Beijing, China. Autumn 2015 YMSC Tsinghua University, Beijing, China. Autumn 2016 YMSC Tsinghua University, Beijing, China. Spring 2017 Max-Planck-Institute, Bonn, Germany. Autumn 2017 YMSC Tsinghua University, Beijing, China. Winter 2018 FRIAS, Freiburg University, Germany. Spring 2018 Luxembourg University, Autumn 2018 YMSC, Tsinghua University, Beijing, China. Spring 2019 Luxembourg University, Autumn 2019 YMSC, Tsinghua University, Beijing, China. Autumn 2021 Mittag-Leffler Institute, Djursholm, Sweden. Spring 2022 Luxembourg University, Spring 2023 Luxembourg University. Autumn 2023 YMSC, Tsinghua University, Beijing, China. Spring 2024 Max-Planck-Institut für Mathematik, Bonn, Germany

Editorships

Geometriae Dedicata (1993–); Monograph Series of the European Mathematical Society (2002–2023); EMS Surveys in Mathematics (2018–); EMS Memoirs in Mathematics (2022–); Unitext (till 2014); 2003-2013 Lecture Notes of the Unione Mathematica Italiana; 1992-2003 Managing Editor of Compositio Mathematica.

Advisory Boards of Scientific Research Institutes

Max-Planck-Institut für Mathematik, Bonn (1999-2015); Research Institute Oberwolfach, Germany (2000-2006); Gesellschaft für Mathematische Forschung, Germany (1998–); Institut für Experimentelle Mathematik, Universität Essen, Germany (2009-2014); CEMPI Institute, Université de Lille, France (2015–2020).

Organization of Conferences

1989 Arithmetic Algebraic Geometry, Texel; 1994 The Moduli Space of Curves, Texel; 1995 Wiles' Proof of Fermat's Last Theorem, Lunteren; 1996 Algebraic Curves over Number Fields, Lunteren; 1999 Moduli of Abelian Varieties, Texel; 1999 Geometry in Positive Characteristic, Amsterdam; 2000 Curves and Abelian Varieties, Anogia, Greece; 2000 Mini Symposium at 3ECM, Barcelona; 2000 Kodierungstheorie, Oberwolfach; 2001 Arakelov Theory, Amsterdam; 2002 Cohomology of Moduli Spaces, Amsterdam; 2003 Coding Theory, Oberwolfach; 2004 The Analogy between Curves and Number Fields, Texel; 2005 Number Fields and Curves over Finite Fields, Anogia, Greece; 2006 Geometry in Autumn, Leiden; 2006 Modular Forms, Schiermonnikoog; 2008 Algebraic Geometry, Satellite ECM 2008, Leiden; 2009 Arithmetic and Algebraic Geometry related to Moduli Spaces, Tokyo; 2009 Classification of Varieties, Schiermonnikoog; 2011 Geometry and Arithmetic, Tokyo; 2013 Geometry and Arithmetic, Tokyo; 2013 Heights and Moduli Spaces, Lorentz Center, Leiden; 2014 K3 surfaces and their Moduli, Schiermonnikoog; 2015 Geometry in Winter, Leiden; 2016 Moduli spaces and modular forms, Oberwolfach. 2019 Rationality of Varieties, Schiermonnikoog. 2021 Moduli spaces and modular forms, Oberwolfach. 2024 Moduli Spaces and Modular Forms, Schiermonnikoog.

Other Professional Activities

1979-2005 Organizer of many Intercity-seminars in the Netherlands, and accompanying local conferences, like in Soesterberg; 1981-1986 Initiator with Oort and Peters of the ZWO-project Moduli Spaces; 1993-2001 Initiator with Faber, Dijkgraaf, Looijenga and Oort of the NWO-project Algebraic Curves and Riemann Surfaces; 1999/2009 co-initiator of the tables of curves with many points (maintained at www.manypoints.org); 2005 Co-initiator of the Fellowship for Geometry and Quantum Theory. 2003-2022 Member of the Board of the Foundation Compositio; chairman 2013-2022. 2012 Co-initiator International Research Training Group Moduli and Automorphic Forms (with Berlin). 2013-present Initiator journal ALGEBRAIC GEOMETRY. 2017. Co-initiator of the website for Siegel modular forms (http://smf.compositio.nl)

Theses written under my Supervision

1988 C. Faber: Chow rings of moduli spaces of curves; 1997 M. Dekker: Moduli of stable sheaves on abelian surfaces. 1999 M. Boguslavsky: Lattices, Codes and Radon Transforms. 2000 G. Farkas: The birational geometry of moduli spaces. 2001 V. Shabat: Curves with many points. 2004 R. Re: Invariants of curves and Jacobians in positive characteristic. 2004 R. de Jong: Explicit Arakelov geometry. 2005 S. Kronemeijer: Diagonal varieties and modular forms. 2005 C. Zaal: Complete Subvarieties of Moduli Spaces. 2008 A. Zaytsev: Optimality properties of curves over finite fields. 2015 A. Peterson: Modular forms on the moduli space of

K3 surfaces. 2019 Z. Zhou: The a-number and the Ekedahl-Oort types of Jacobians of curves.

Management

1985-1986 Chairman Department of Mathematics UvA; 1988-1989 Chairman Department of Mathematics UvA; 1991-1993 Dean of the Faculty Mathematics and Computer Science UvA; 1992-1997 Member of the Board of the Research school Stieltjes; 1996-1999 Adviescommissie Wiskunde NWO; 2012-2017 Chair of the Dutch side of the Graduiertenkolleg Moduli and Automorphic Forms; 2013-2022 President Foundation Compositio Mathematica (www.compositio.nl)

Awards, grants

NWO Grant Moduli spaces (with F. Oort and C. Peters); NWO grant Algebraic curves and Riemann surfaces (with Faber, Dijkgraaf, Looijenga and Oort); NWO Grant GQT; DFG-NWO grant IRTG Moduli and Automorphic Forms; Pseichorides Chair, Heraklion Crete. NWO Grant Stratifications on the moduli space of curves. NWO Grant Modular forms and moduli spaces; NWO Grant The geometry of the moduli space of K3 surfaces. Honorary Doctorate, Stockholm University (2017).

Selected Publications

[1] (with D. Zagier) *The Hilbert Modular Group of the Field* $\mathbb{Q}(\sqrt{13})$. Inventiones Math. **42** (1977), pp. 93–133.

[2] (with B. van Geemen) *Kummer Varieties and the Moduli Spaces of Abelian Varieties.* American Journal of Math. **108** (1986), pp. 615–642.

[3] *Hilbert Modular Surfaces.* Ergebnisse de Mathematik **16**. Springer Verlag 1987.

[4] (With M. van der Vlugt) *Reed-Muller Codes and Supersingular Curves. I.* Compositio Math. **84** (1992), pp. 333–368.

[5] (With M. van der Vlugt) *On the existence of supersingular curves of a given genus.* Journal für die reine und angewandte Mathematik **458** (1995), pp. 53–61.

[6] *Cycles on the Moduli Space of Abelian Varieties.* In: Moduli of Curves and Abelian Varieties (The Dutch Intercity Seminar on Moduli), pp. 65–89. Aspects of Mathematics, Vieweg, Wiesbaden 1999.

[7] (With T. Katsura) *On a stratification of the moduli of K3 surfaces.* Journal Eur. Math. Soc. **2**, (2000), pp. 259–290.

[8] (With R. Schoof) *Effectivity of Arakelov divisors and the Theta divisor of a number field.* Schoof). Selecta Math., New Ser. 6 (2000), pp. 377–398.

[9] (With C. Faber) *Complete subvarieties of moduli spaces and the Prym map.* J. Reine Angew. Math. 573 (2004), pp. 117–137.

[10] (With T. Ekedahl) *The order of the top Chern class of the Hodge bundle on the moduli space of abelian varieties.* Acta Math. 192 (2004), p. 95–109.

[11] (With T. Ekedahl) *Cycles representing the top Chern class of the Hodge bundle on the moduli space of abelian varieties.* Duke Math. J. 129 (2005), no. 1, 187–199.

[12] (With T. Ekedahl) *Cycle classes of the E-O stratification on the moduli of abelian varieties.* In: Algebra, arithmetic, and geometry: in honor of Yu. I. Manin. Vol. I, 567-636, Progr. Math., 269, Birkhäuser Boston, Inc., Boston, MA, 2009.

[13] (With Alexis Kouvidakis) *Cycle relations on Jacobian varieties.* With an appendix by Don Zagier. Compos. Math. 143 (2007), no. 4, 900–908.

[14] (with Jonas Bergström and Carel Faber) *Siegel modular forms of degree three and the cohomology of local systems* Selecta Math. (N.S.) 20 (2014), no. 1, pp. 83–124.

[15] (With T. Ekedahl) *Cycle classes on the moduli of K3 surfaces in positive characteristic.* Selecta Math. (N.S.) 21 (2015), no. 1, 245-291.

[16] (with Fabien Cléry and Carel Faber) *Covariants of binary sextics and vector-valued Siegel modular forms of genus 2.* Math. Annalen 2017, DOI 10.1007/s00208-016-1510-2.
[17] (with Fabien Cléry and Carel Faber) *Concomitants of ternary quartics and vector-valued Siegel and Teichmueller modular forms of genus three.* Selecta Mathematica (2020) 26:55.
[18] (with J. Bergström) *Picard modular forms and the cohomology of local systems on a Picard modular surface.* Commentarii Math. Helv. 97 (2022), 305-381

Editor of Proceedings

[1] (With F. Oort and J. Steenbrink) *Arithmetic Algebraic Geometry.* Progress in Math 89, Birkhäuser (1990). [2] (With R. Dijkgraaf and C. Faber) *The Moduli Space of Curves.* Progress in Math 129, Birkhäuser (1995). [3] (With C. Faber and F. Oort) *Moduli of Abelian Varieties.* Progress in Math 195, Birkhäuser (2000). [4] (With B. Moonen and R. Schoof) *Number Fields and Curves over Finite Fields: Two Parallell Worlds* Progress in Math. 239, Birkhäuser. [5] (With B. Edixhoven and B. Moonen) *Modular Forms on Schiermonnikoog.* Cambridge Univ. Press, Cambridge, 2008. [6] (with Carel Faber and Eduard Looijenga) *Classification of algebraic varieties.* EMS Series of Congress Reports. European Mathematical Society, Zürich, 2011. [7] (With C. Faber and G. Farkas) *K3 Surfaces and their Moduli.* Progress in Mathematics 315. Birkhäuser 2016. [8] (With G. Farkas, L. Taelman, M. Shen) *Rationality of Varieties.* Progress in Mathematics 342. Birkhäuser 2021.