

Curriculum Vitae — Dr. B. de Smit

ADDRESSES

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PERSONAL INFORMATION

Born April 9, 1966 in Amsterdam; citizen of the Netherlands; male.

DEGREES

- Ph.D. in Mathematics, University of California, Berkeley, May 1993
- Doctorandus in de informatica, cum laude, Amsterdam, June 1990
- Doctorandus in de wiskunde, cum laude, Amsterdam, December 1988

DISSERTATION

“Class group relations and Galois module structure,” UC Berkeley, May 1993.
Dissertation committee: Prof. H. W. Lenstra, Jr. (Chair), Prof. K. Ribet, Prof. M. Blum.

HONORS

- KNAW fellowship, Royal Academy of Science of the Netherlands, 1998–2002
- “Onderzoeksprijs 1995”, campus wide research award, Erasmus Universiteit Rotterdam, 1995
- Departmental Citation for Distinguished Teaching Assistant, UC Berkeley, May 1993
- Nelson scholarship and Brown fellowship, UC Berkeley 1991–1992
- Wheeler fellowship, UC Berkeley 1990–1991
- Fulbright Grant, 1989–1993

EMPLOYMENT

- Fellow of the KNAW (Royal Academy of Sciences of the Netherlands) at the Universiteit Leiden, January 1998 – December 2002
- Post-Doc position at Universiteit van Amsterdam January 1996 – December 1997 (Number Theory Project, NWO)
- Post-Doc position at Erasmus Universiteit Rotterdam, August 1993 – December 1995
- Research assistant at UC Berkeley, Fall 1992, Summer 1992, Fall 1991
- Teaching assistant at UC Berkeley Spring 1993, Spring 1992, Spring 1990, Fall 1989
- Research assistant at Centrum voor Wiskunde en Informatica in Amsterdam, Jan. 1988–June 1989

RESEARCH ACTIVITIES

- Coordinator of the Leiden node of the EC funded Research and Training Network *Galois theory and explicit methods in arithmetic*, 2000–2004, and manager of its preprint server
- Co-organizer of the *Intercity number theory seminar* since 1993, main organizer since August 2001
- Co-organizer of *Van der Waerden centennial celebration*, Groningen, February 2003
- Organizer of the European network conference *Explicit methods in arithmetic and Galois theory*, Lorentz Center, Leiden, June 2002
- Visiting researcher (“general member”) at the Mathematical Sciences Research Institute, Berkeley, fall 2000
- Co-organizer of international conference *Algorithmic Number Theory Symposium IV*, Leiden July 2000
- Co-organizer *Kloosterman centennial celebration*, Leiden April 2000

INVITED LECTURES

- *Radical Galois groups*, at: “Explicit algebraic number theory” (“Stieljtes week”), Leiden September 2002
- *On arithmetically equivalent number fields of small degree*, at: “Algorithmic Number Theory Sympostium V”, Sydney, July 2002
- *Galois groups of radical extensions*, at: “Nederlands Mathematisch Congres”, Leiden, April 2002
- *Zeta functions*, Intercity Number theory Seminar (Part 2 of 3 lectures by Schoof, De Smit, Lenstra), September 2001
- *Jacobian relations for modular curves of level p^2* , “Journées Arithetiques”, Lille, July 2001
- *On number fields with the same zeta function and distinct p -class numbers*, Mathematical Sciences Research Institute, Berkeley, September 23 2000
- *The interactive group theory of arithmetically equivalent fields*, LMS Durham Symposium on Computational Number Theory, July 24 – August 3, 2000
- *On Imin Chen’s jacobian relations*, King’s College, London, October 1999
- *Factoring integers*, “Stieltjes-middag” May 31 1999, Amsterdam
- *Permutation modules and class number relations*, at: “Explicit methods in number theory”, Oberwolfach, July 1999
- *Linearly equivalent actions of solvable groups*, at: “Orders in Arithmetic and Geometry”, Oberwolfach, January 1999

COURSES

- Lower division course work in Leiden: Algebra 1, Algebra 2 for mathematics majors (spring 2001, fall 2002); calculus for students in “Life Sciences and Technology” (fall 2001)
- Upper division courses in Leiden: advanced algebraic number theory (fall 2002), elliptic curves (2000), algebraic number theory (1999), functional analysis (1997)
- MRI Masterclass (with J. Brinkhuis) Algebraic Number Theory: Kolyvagin’s Euler systems of Gauss sums, Utrecht, 1995/1996
- “Factorisatie en Cryptografie” (two-day workshop for high school students), Universiteit van Amsterdam, February 24-25, 1997
- “First course in modern mathematical analysis”, one semester course for graduate students in economics, Tinbergen Instituut Rotterdam, 1994

STUDENT SUPERVISION

- Copromotor of Bas Jansen, PhD expected in 2006 in Leiden with promotor Lenstra; supervisor of his “doctoraalscriptie” *Mersenne primes of the form $x^2 + dy^2$* (Utrecht, 2002)
- Copromotor of Mascha Honsbeek (with Bosma); PhD thesis: *Galois groups of radical extensions*, PhD expected in 2003 in Nijmegen with promotor Keune
- Copromotor of Richard Groenewegen; tentative title PhD thesis: *geometry of algebraic numbers*, PhD expected in 2003 in Leiden with promotor Lenstra
- Copromotor of Lara Thomas, PhD expected in Toulouse in 2005; supervisor of her “stage de DEA” in Leiden (Summer 2001), her DEA thesis *Galois theory of infinite Artin Schreier extensions* and DEA exam (Paris, September 2002)
- Supervisor of the “doctoraalscriptie” *On the support problem* of Ana Lukic, degree expected in 2003 in Utrecht
- PhD committee Hans Roskam (Leiden, 2003), Nils Bruin (Leiden, 1999), Aimée Herczog (Nijmegen, 1997)
- “Rapporteur” for the PhD thesis of Luca Spriano, Bordeaux 1999

COMMITTEE WORK AND PROJECT MANAGEMENT

- Chair of the computer committee of the Mathematical Institute of the Universiteit Leiden (planning and management of computer resources and system administration)
- Chair of the project *Escher and the Droste effect*. Planning and management of programming and artistic work, website (185000 visitors sofar), media coverage (radio, newspapers, TV), computer presentations, lecturing (see below)
- Editor (with J. Top) of a volume “Kaleidoscoop II” of Dutch texts of popular mathematics, to be published in 2003.
- Manager of the central webpages of the MI Leiden since 1998; organization and coding of web-based information put out by the Mathematical Institute.
- Editor/author of the program booklet “Pi in de Pieterskerk”, July 5 2000. Author of “Pi in de pers” (jointly with J. Top and C. Zaal), *Nieuw Archief voor de Wiskunde*, December 2000, and a photograph in *Science* Vol 289 no. 5477, p. 241.
- Member PR-committee 1998, 1999 at MI Leiden: planning and organization of public events

LECTURES ON ESCHER AND THE DROSTE EFFECT

- Annual Imago Promovendidag “Progress 2002”, October 2002, Utrecht (*onderzoeksschool* imaging techniques in medical sciences)
- Joint Mathematics and Computer Science Colloquium of the Rijksuniversiteit Groningen, November 2002
- *VIGRE Undergraduate Colloquium* of the Mathematics Department of the University of Michigan, November 2002
- Ehrenfest Colloquium, Universiteit Leiden, January 2003
- Studium Generale, Universiteit Twente, January 2003
- Nederlandse Wiskunde Dagen, January 2003
- Studium Generale, Maastricht, January 2003
- Physics Department Colloquium, MIT, March 2003
- Conference *Matematica e Cultura 2003*, Venice, March 2003

Publications of B. de Smit

SUBMITTED FOR PUBLICATION IN 2002

- 1 *On arithmetically equivalent fields with distinct p -class numbers.*
- 2 *Relations between jacobians of modular curves of level p^2 ,* with I. Chen and M. Grabitz.
- 3 *An algebraic proof of Brauer's class number relations.*

REFEREED PUBLICATIONS

- 4 *Arithmetically equivalent number fields of small degree,* with W. Bosma, in: C. Fieker, D. Kohel (Eds.), *Algorithmic Number Theory*, Lecture Notes in Computer Science 2369, Springer-Verlag 2002.
- 5 *Class number relations from a computational point of view,* with W. Bosma, *J. Symbolic Comput.* **31** (2001), 97–112.
- 6 *Brauer relations for S -class numbers,* *Acta Arithmetica* **98** no. 2 (2001) 133–146.
- 7 *The cyclic subfield integer index,* *J. Théor. Nombres Bordeaux* **12** (2000), 209–218.
- 8 *Sur un résultat d'Imin Chen,* with B. Edixhoven, *Mathematical Research Letters* **7** (2000), 147–154.
- 9 *Linearly equivalent actions of solvable groups,* with H.W. Lenstra, Jr., *J. Algebra* **228** (2000), 270–285.
- 10 *Generating arithmetically equivalent number fields with elliptic curves,* in: J.P. Buhler (Ed.), *Algorithmic Number Theory*, Lecture Notes in Computer Science 1423, Springer-Verlag 1998.
- 11 *Criteria for complete intersections,* with K. Rubin and R. Schoof, pp. 343–355 in: *Modular Forms and Fermat's Last Theorem*, Springer-Verlag 1997. (Proc. Boston Conference on Wiles's proof of Fermat's Last Theorem, Eds. Cornell, Silverman, Stevens)
- 12 *Explicit construction of universal deformation rings,* with H.W. Lenstra, Jr., pp. 313–326 in: *Modular Forms and Fermat's Last Theorem*, Springer-Verlag 1997.
- 13 *A differential criterion for complete intersections,* *Collect. Math.* **48**, 1–2 (1997), 85–96.
- 14 *Finite complete intersection algebras and the completeness radical,* with H.W. Lenstra, Jr., *J. Algebra* **196** (1997) 520–531.
- 15 *The different and differentials for local fields with imperfect residue fields,* *Proc. Edinburgh Math. Soc.* **40** (1997), 353–365.
- 16 *Factor equivalence results for integers and units,* *Enseign. Math. (2)* **42** (1996) 383–394.
- 17 *On a conductor discriminant formula of McCulloh,* *Illinois J. Math.* **40** (1996) No 2, 338–343.
- 18 *Measure characteristics of complexes,* *Cahiers Topologie Géom. Différentielle Catégoriques* **37**, no. 1 (1996), 3–20.
- 19 *Primitive elements in integral bases,* *Acta Arith.* **71** (1995), 159–170.
- 20 *Zeta functions do not determine class numbers,* with R. Perlis, *Bull. Amer. Math. Soc. (N.S.)* **31** (1994), 213–216.
- 21 *Algebraic numbers with integral power traces,* *J. Number Theory* **45**, No. 1 (1993), 112–116.

- 22 *Ramification groups of local fields with imperfect residue class fields*, J. Number Theory **44**, No. 3 (1993), 229–236.
- 23 *The fundamental group of the Hawaiian earring is not free*, Internat. J. Algebra Comput. **2**, No. 1 (1992), 33–37.