

Curriculum Vitae
Alberto Marcone

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PERSONAL

- Born November 3, 1962 in Ivrea, Italy
- Italian citizenship
- Married, three children

RESEARCH INTEREST

Reverse Mathematics, Descriptive Set Theory, WQO and BQO theory, Computable Mathematics, Computable Analysis.

EDUCATION

- 1993: Ph.d. in Mathematics, The Pennsylvania State University (thesis advisor: Stephen G. Simpson)
- 1986: Laurea in Mathematics, Università di Torino, Italy (110/110 *summa cum laude*, thesis supervisors: Flavio Previale and Franco Parlamento)

EMPLOYMENT

- 2017–present: Università di Udine, Italy, full professor
- 1998–2017: Università di Udine, Italy, associate professor
- 1990–1998: Università di Torino, Italy, ricercatore (roughly corresponding to assistant professor)
- 1989–1990: The Pennsylvania State University, Department of Mathematics, Instructor

PH.D. STUDENTS ADVISED

- Manlio Valenti, current, since 2017.
- Marta Fiori Carones, current, since 2016.
- Emanuele Frittaion, graduated 2014 (thesis “Reverse Mathematics and partial orders”).

POSTDOCS MENTORED

- Matthew Hendtlass, 2012–13.

PUBLICATIONS

[Publications are listed in order of submission, rather than of publication.]

- [1] Theory of sets and classes and systems used in reverse mathematics, *Rendiconti del seminario matematico dell’Università e del Politecnico di Torino* **46** (1988), 189–215.
- [2] Borel quasi-orderings in subsystems of second-order arithmetic, *Annals of Pure and Applied Logic* **54** (1991), 265–291.
- [3] Foundations of bqo theory, *Transactions of the American Mathematical Society* **345** (1994), 641–660.
- [4] The set of better quasi orderings is Π_2^1 -complete, *Mathematical Logic Quarterly* **41** (1995), 373–383, arXiv:math/9405207.

- [5] On the logical strength of Nash-Williams' theorem on transfinite sequences, in: W. Hodges, M. Hyland, C. Steinhorn, J. Truss (eds.), *Logic: From Foundations to Applications*, Clarendon Press, 1996, pp. 327–351, arXiv:math/9408204.
- [6] Ordinary differential equations and descriptive set theory: uniqueness and globality of solutions of Cauchy problems in one dimension (with A. Andretta), *Fundamenta Mathematicae* **153** (1997), 157–190, arXiv:math/9609204.
- [7] Lebesgue numbers and Atsugi spaces in subsystems of second-order arithmetic (with M. Giusto), *Archive for Mathematical Logic* **37** (1998), 343–362, arXiv:math/9602203.
- [8] Finite families with few symmetric differences (with F. Parlamento and A. Poliscriti), *Proceedings of the American Mathematical Society* **127** (1999), 835–845.
- [9] Extensions of functions which preserve the continuity on the original domain (with C. Costantini), *Topology and its Applications* **103** (2000), 131–153.
- [10] Projective sets and ordinary differential equations (with A. Andretta), *Transactions of the American Mathematical Society* **353** (2001), 41–76.
- [11] Pointwise convergence and the Wadge hierarchy (with A. Andretta), *Commentationes Mathematicae Universitatis Carolinae* **42** (2001), 159–172.
- [12] Definability in function spaces (with A. Andretta), *Real Analysis Exchange* **26** (2000/01), 285–308.
- [13] Fine analysis of the quasi-orderings on the power set, *Order* **18** (2001), 339–347.
- [14] WQO and BQO theory in subsystems of second order arithmetic, in: S.G. Simpson (ed.), *Reverse Mathematics 2001*, Lecture Notes in Logic 21, Association for Symbolic Logic, 2005, pp. 303–330.
- [15] Classification problems in continuum theory (with R. Camerlo and U.B. Darji), *Transactions of the American Mathematical Society* **357** (2005), 4301–4328.
- [16] The complexity of continuous embeddability between dendrites (with C. Rosendal), *The Journal of Symbolic Logic* **69** (2004), 663–673.
- [17] Reverse mathematics and the equivalence of definitions for well and better quasi-orders (with P. Cholak and R. Solomon), *The Journal of Symbolic Logic* **69** (2004), 683–712.
- [18] Complexity of curves (with U.B. Darji), *Fundamenta Mathematicae* **182** (2004), 79–93.
- [19] Complexity of sets and binary relations in continuum theory: a survey, in: J. Bagaria, S. Todorcevic (eds.), *Set Theory. Centre de Recerca Matemàtica Barcelona, 2003-2004*, Trends in Mathematics, Birkhäuser, 2006, pp.121–147.
- [20] Equivalenze tra teoremi: il programma di ricerca della reverse mathematics, *La Matematica nella Società e nella Cultura, Rivista dell'Unione Matematica Italiana* **2** (2009), 101–126.
- [21] Interval orders and reverse mathematics, *Notre Dame Journal of Formal Logic* **48** (2007), 425–448, arXiv:math/0609022.
- [22] Coloring linear orders with Rado's partial order (with R. Camerlo), *MLQ Mathematical Logic Quarterly* **53** (2007), 301–305.
- [23] On Fraïssé's conjecture for linear orders of finite Hausdorff rank (with A. Montalbán), *Annals of Pure and Applied Logic* **160** (2009), 355–367.
- [24] How incomputable is the separable Hahn-Banach theorem? (with G. Gherardi), *Notre Dame Journal of Formal Logic* **50** (2009), 393–425, arXiv:0808.1663.
- [25] The Veblen functions for computability theorists (with A. Montalbán), *The Journal of Symbolic Logic* **76** (2011), 575–602, arXiv:0910.5442.
- [26] Invariantly universal analytic quasi-orders (with R. Camerlo and L. Motto Ros), *Transactions of the American Mathematical Society* **365** (2013), 1901–1931, arXiv:1003.4932.

- [27] The maximal linear extension theorem in second order arithmetic (with R.A. Shore), *Archive for Mathematical Logic* **50** (2011), 543–564, arXiv:1009.1528.
- [28] The Bolzano-Weierstrass Theorem is the Jump of Weak König’s Lemma (with V. Brattka and G. Gherardi), *Annals of Pure and Applied Logic* **163** (2012), 623–655. Addendum (with V. Brattka, A. Cettolo, G. Gherardi e M. Schröder), *Annals of Pure and Applied Logic* **168** (2017), 1605–1608, arXiv:1101.0792.
- [29] Computing maximal chains (with A. Montalbán and R.A. Shore), *Archive for Mathematical Logic* **51** (2012), 651–660, arXiv:1201.4408.
- [30] Linear extensions of partial orders and Reverse Mathematics (with E. Frittaion), *MLQ Mathematical Logic Quarterly* **58** (2012), 417–423, arXiv:1203.5207.
- [31] Reverse mathematics and initial intervals (with E. Frittaion), *Annals of Pure and Applied Logic* **165** (2014), 858–879, arXiv:1303.2926.
- [32] Epimorphisms between linear orders (with R. Camerlo and R. Carroy), *Order* **32** (2015), 387–400, arXiv:1403.2158. Erratum *Order* **33** (2016), 187.
- [33] On isometry and isometric embeddability between ultrametric Polish spaces (with R. Camerlo and L. Motto Ros), *Advances in Mathematics* **329** (2018) 1231–1284, arXiv:1412.6659.
- [34] Reverse mathematics, well-quasi-orders, and Noetherian spaces (with E. Frittaion, M. Hendtlass, P. Shafer, and J. Van der Meeren), *Archive for Mathematical Logic*, **55** (2016), 431–459, arXiv:1504.07452.
- [35] The logic of the reverse mathematics zoo (with G. D’Agostino), *Mathematical Structures in Computer Science*, **28** (2018), 412–428, arXiv:1512.08035.
- [36] Linear orders: when embeddability and epimorphism agree (with R. Camerlo and R. Carroy), submitted, arXiv:1701.02020.
- [37] The reverse mathematics of wqos and bqos, to appear in: P. Schuster, M. Seisenberger, A. Weiermann (eds.), *Well quasi-orders in computation, logic, language and reasoning*, Trends in Logic, Springer, arXiv:1707.08365.
- [38] Projection operators in the Weihrauch lattice (with G. Gherardi and A. Pauly), submitted, arXiv:1805.12026.
- [39] Polish metric spaces with fixed distance set (with R. Camerlo and L. Motto Ros), submitted, arXiv:1809.06588.

SELECTED TALKS

- Predicativism/impredicativism and mathematical practice: results and techniques in reverse mathematics, invited talk, *Operations, Sets and Types*, Castiglione (Italy), October 3–6, 1998.
- Wqo and bqo theory in subsystems of second order arithmetic, invited talk, special session on Proof Theory and Complexity, *1999-2000 ASL Annual Meeting*, Urbana-Champaign (Illinois), June 3–7, 2000.
- Logical aspects of wqo theory, plenary talk, *Logic Colloquium 2004*, Torino (Italy), July 25–31, 2004.
- Finite better quasi orders, invited talk, special AMS-ASL session on Reverse Mathematics, *2005 Joint Mathematics Meetings*, Atlanta (USA), January 5–8, 2005.
- Descriptive Set Theory and Continuum Theory: classification of sets and binary relations, invited course (3 lectures) *34th Winter School in Abstract Analysis 2006*, Lhota nad Rohanovem (Czech Rep.), January 14–21, 2006.
- The reverse mathematics of Fraïssé’s conjecture for finite Hausdorff rank, invited talk, special session on Computability Theory and Computable Mathematics, *2008 ASL Annual Meeting*, Irvine (USA), March 27–30, 2008.
- Veblen functions, Turing jumps, and reverse mathematics, plenary talk, *7th Panhellenic Logic Symposium*, Patras (Greece), July 15–19, 2009.

- The reverse mathematics of the maximal linear extension theorem for WPOs, invited talk, *Workshop on Computability Theory 2010*, Paris (France), July 23–24, 2010.
- Well partial orders and better partial orders in reverse mathematics, invited talk, *Reverse Mathematics Workshop*, Chicago (USA), September 16–18, 2011.
- Partial orders and reverse mathematics, invited seminar, *Buenos Aires Semester in CCR Computability, Complexity and Randomness*, Buenos Aires (Argentina), January 30, 2013.
- The complexity of isometric embeddability between ultrametric Polish spaces with fixed set of distances, *ESI 2013 Set Theory Programme, Descriptive Set Theory Workshop*, Vienna (Austria), September 30–October 4, 2013.
- Some Recent Advances in the Reverse Mathematics of Partial Orders, invited talk, *Workshop on Computability Theory 2015*, Bucharest (Romania), June 27–28, 2015.
- From Well-Quasi-Orders to Noetherian Spaces: the Reverse Mathematics Viewpoint, plenary talk, *Computability Theory and Foundations of Mathematics 2015*, Tokyo (Japan), September 7–11, 2015.
- Wqo and bqo theory in reverse mathematics, invited talk, workshop *Well Quasi-Orders in Computer Science*, Schloss Dagstuhl — Leibniz Center for Informatics (Germany), January 17–22, 2016.
- A peek at the higher levels of the Weihrauch hierarchy, invited talk, workshop *Computability Theory*, Schloss Dagstuhl — Leibniz Center for Informatics (Germany), February 19–24, 2017.
- Computability and incomputability of projection functions in Euclidean space, invited talk, workshop *Computability Theory*, Mathematisches Forschungsinstitut Oberwolfach (Germany), January 7–12, 2018.
- Strongly surjective linear orders: when embeddability and epimorphism agree, invited talk, *Descriptive set theory conference*, Bernoulli Center, Lausanne (Switzerland), June 18–22, 2018.
- Looking for ATR_0 in the Weihrauch lattice, plenary talk, *Sailing Routes in the World of Computation, CiE 2018*, Kiel (Germany), July 30–August 3, 2018.

Last updated: September 19, 2018