David Anton Karpuk

Gender: male Date of birth: 27.03.1984 Place of birth: San Francisco, California, USA Citizenship: USA

Current Position

Current Address: Kustaankatu 5 A 25 00500 Helsinki email: davekarpuk@gmail.com

Postdoctoral Researcher - Aalto University Espoo, Finland	1.1.2013 - present
Researching applications of Algebra and Number Theory to Wireless Communications, as a member of Professor Camilla Hollanti's research group; funding in 2012 from Camilla Hollanti's Academy of Finland project <i>Applications of Class Field Theory in Present and</i> <i>Future Multi-Antenna Communications</i>	
Senior Researcher - University of Turku	1.9.2012 - 31.12.2012
Turku, Finland, though physical location is Aalto University	
Education and Degrees Awarded	
Ph.D. Mathematics - University of Maryland, College Park	21.5.2012
College Park, Maryland, United States of America	
Doctoral Thesis: Weil-étale Cohomology over Local Fields	
Dissertation Advisor: Professor Niranjan Ramachandran	
B.A. Mathematics - Boston College	22.5.2006
Chestnut Hill, Massachusetts, United States of America	
Bachelor's Thesis: The Complex Structure of Elliptic Curves	
Thesis Supervisor: Mark Reeder	
Research Funding, Awards, and Honours	
Ralph P. Pass III Fellowship Awarded by University of Maryland Mathematics Department to stud-	Fall 2011 ents in Number Theory
	C 0011
Ann G. Wyne Dissertation Fellowship Spring 2011 Awarded by University of Maryland Graduate School to outstanding doctoral students, in the amount of \$10000 for one semester	
Gold Medal Recipient: Spotlight on Graduate Research Compe Awarded by University of Maryland Mathematics Department for Sola Equations over Finite Fields	etition Spring 2011 utions to Polynomial
Teaching Assistantship	Fall 2006 - Spring 2012
Awarded by University of Maryland Department of Mathematics, in the approximately \$25000/year, covering tuition and stipend	ne amount of

Departmental Honors

Awarded by Boston College Mathematics Department to outstanding Mathematics majors

Linguistic and Other Skills

Computing Skills: Python, MATLAB, Mathematica

Linguistic Skills: English (mother tongue), elementary German, elementary Finnish

Selected Talks

Applications of Number Theory to Wireless Communications: Units Groups, I Functions, and Quaternion Algebras Number Theory Seminar, Max-Planck-Institut für Mathematik, Bonn, Gerr	Dedekind Zeta January 2013 nany
Probability Bounds for Wiretap Channels Algebra Seminar, Aalto University, Espoo, Finland	September 2012
Cohomology of the Weil Group Midwest Number Theory Graduate Conference, University of Wisconsin	November 2011
Weil-étale Sheaves on Curves over Local Fields Midwest Algebraic Geometry Graduate Conference, University of Wisconsir	October 2010
Hasse Principle for Rational Function Fields Arizona Winter School on Quadratic Forms, University of Arizona	March 2009
The Complex Structure of Elliptic Curves Symposium for Undergraduates in the Mathematical Sciences, Brown Univer-	March 2006 ersity

Service

Mentor, Directed Reading ProgramFall 2011 - Spring 2012Advised informal undergraduate reading courses on discrete logarithm problems and elliptic
curves at University of Maryland

Organizer, Mathematics Graduation Conference - University of Maryland Spring 2012 Organized a department-wide conference for Mathematics graduate students

Volunteer, LET'S GO Boys and Girls - Annapolis, Maryland Fall 2011 - Spring 2012 Served as a volunteer for an organization which promotes STEM education for children

Founder, Student Number Theory Seminar - University of Maryland Fall 2009 - Spring 2011

Created and scheduled a seminar for graduate students in Algebra and Number Theory

Teaching Duties at Aalto University

Teaching Assistant, Galois Theory

Leading discussion and exercise groups for an undergraduate course in Galois Theory

Teaching Duties at University of Maryland

Teaching Assistant, SPIRAL

Worked with talented undergraduates from Historically Black Colleges and Universities for a summer research program; implemented students' algorithms for combinatorial games in Python

- **Discussion Sections: Clarified lectures, led discussion groups** Fall 2008 Spring 2012 Applied Probability and Statistics, Elementary Calculus I for Business and Life Science Majors, Multivariable Calculus, Calculus II for Engineering and Science Majors,
- Sole Contact Classes: Created lesson plans, delivered lectures Fall 2006 Spring 2008 College Algebra with Applications, Elements of Geometry and Measurement for Education Majors, Introduction to Probability, Precalculus, Differential Equations for Scientists and Engineers

Grading: Graded homework, provided solutions Fall 2009 - Spring 2010

Introduction to Number Theory, Graduate Abstract Algebra, Graduate Topology

Professional References

Niranjan Ramachandran Dissertation Advisor University of Maryland atma@math.umd.edu

Lawrence Washington Professor University of Maryland lcw@math.umd.edu Camilla Hollanti Assistant Professor Aalto University camilla.hollanti@aalto.fi

Summer 2011

Thomas Haines Professor University of Maryland tjh@math.umd.edu