

ANDREW OBUS

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Charlottesville, VA 22904 Citizenship: USA

Employment

2013 – Assistant Professor, University of Virginia
2009-11, 2012-13 NSF Postdoctoral Fellow, Columbia University (Supervisor: Aise Johan de Jong)
2016 – 2017 Visiting faculty, NYU
2011 – 2012 Visiting researcher, Max-Planck-Institut Für Mathematik
2003 – 2004 Quantitative Analyst, D. E. Shaw & Co.

Education

Fall 2004 – Spring 2009 Ph.D., Mathematics, University of Pennsylvania (Advisor: David Harbater.
Thesis: *Ramification of primes in fields of moduli of three-point covers*)
Fall 1999 – Spring 2003 A.B., Mathematics, Harvard College, *magna cum laude*, Phi Beta Kappa (Ad-
visor: Benedict Gross. Thesis: *The trace formula for $\Gamma_0(N)$*)

Federal Funding

2016 – 2019 NSF DMS-1602054: “Branched Galois covers of curves: lifting and reduction,” standard grant, \$128,500
2013 – 2016 NSF DMS-1265290: “Lifting problems and Galois theory,” FRG with Ted Chinburg, Bob Guralnick, David Harbater, and Florian Pop, \$1,160,002
2009 – 2013 NSF Mathematical Sciences Postdoctoral Research Fellowship, \$135,000
2006 – 2009 NDSEG Graduate Research Fellowship, \$93,000
2016 NSF DMS-1660462: “Elliptic curves, torsors, and L -functions,” conference grant with Andrei Rapinchuk and Lloyd West, \$15,000
2016 NSA Young Investigators Grant, \$40,000 (declined in favor of NSF grant DMS-1602054 above)

Honors and Awards

2015 All-University Teaching Award, University of Virginia, \$2,000
2009 Carlitz-Zippin Prize (for an exceptional Ph. D. Thesis), University of Pennsylvania
2006 Honorable Mention, Penn Prize for Excellence in Teaching by Graduate Students
2005, 2007 Good Teaching Award, University of Pennsylvania
2004 – 2009 Calabi Fellowship, University of Pennsylvania
2001, 2002 Certificate of Distinction in Teaching, Harvard University
1997 – 1999 United States of America Mathematical Olympiad, Qualifier (Honorable Mention for high score, 1998)

Accepted publications¹

¹All papers available on arxiv and linked from the web address above

1. (with David Harbater, Rachel Pries, and Kate Stevenson) Abhyankar’s conjectures in Galois theory: Current status and future directions.
Bull. Amer. Math. Soc., to appear, [arxiv:1408.0859](https://arxiv.org/abs/1408.0859), 47 pp.
2. A generalization of the Oort conjecture.
Comm. Math. Helv., **92** (2017), no. 3, 551–620.
3. (with Colin Ingalls, Ekin Ozman, and Bianca Viray) Unramified Brauer classes on cyclic covers of the projective plane.
Progress in Mathematics **320**, Birkhäuser (*Proceedings of the AIM conference “Brauer groups and obstruction problems”*) (2017), 115–153.
4. Good reduction of three-point Galois covers.
Algebr. Geom., **4** (2017), no. 2, 247–262.
5. The local lifting problem for A_4 .
Algebra Number Theory, **10** (2016), no. 8, 1683–1693.
6. (with Stefan Wewers) Wild ramification kinks.
Res. Math. Sci., **3**:21 (2016), 27 pp.
7. (with Stefan Wewers) Cyclic extensions and the local lifting problem.
Ann. of Math., **180** (2014), no. 1, 233–284.
8. Conductors of wild extensions of local fields, especially in mixed characteristic $(0, 2)$.
Proc. Amer. Math. Soc., **142** (2014), 1485–1495.
9. Fields of moduli of three-point G -covers with cyclic p -Sylow, II.
J. Théor. Nombres Bordeaux, **25** (2013), no. 3, 579–633.
10. Toward Abhyankar’s inertia conjecture for $PSL_2(\ell)$.
Séminaires et Congrès **27**, Soc. Math. France (*Proceedings of the Luminy Meeting “Groupes de Galois géométriques et différentiels”*) (2013), 191–202.
11. On Colmez’s product formula for periods of CM-abelian varieties.
Math. Ann., **356** (2013), no. 2, 401–418.
12. The (local) lifting problem for curves.
Advanced Studies in Pure Mathematics **63**, Math. Soc. Japan (*Proceedings for Conferences in Kyoto “Galois-Teichmüller theory and Arithmetic Geometry”*) (2012), 359–412.
13. Fields of moduli of three-point G -covers with cyclic p -Sylow, I.
Algebra Number Theory, Vol. 6 (2012), no. 5, 833–883.
14. Vanishing cycles and wild monodromy.
Int. Math. Res. Notices, Vol. 2012, No. 2, 299–338.
15. (with Rachel Pries) Wild tame-by-cyclic extensions.
J. Pure Appl. Algebra **214** (2010), no. 6, 565–573.

Submitted papers

1. (with Hilaf Hasson) The abc conjecture implies the weak diversity conjecture.
[arxiv.1706.05782](https://arxiv.org/abs/1706.05782), 6 pp.
2. (with John Doyle, Holly Krieger, Rachel Pries, Simon Rubinstein-Salzedo, and Lloyd West) Reduction of dynatomic curves.
[arxiv:1703.04172](https://arxiv.org/abs/1703.04172), 47 pp.

3. Lifting of curves with automorphisms.
arxiv:1703.01191, 43 pp.

Student Research Advised

- 2020 Andrew Kobin, Ph. D. expected, University of Virginia.
 2019 Huy Dang, Ph. D. expected, University of Virginia.
 2018 Jim Phillips, Ph. D. expected, University of Virginia.
 2018 Bradley Weaver, Ph. D. expected, University of Virginia.
 2014 Tahseen Rabbani, undergraduate summer research, University of Virginia²
 2012 – 2013 Daniel Kang, undergraduate thesis, Columbia University

Talks

- 2017 Nov. Rice University, Algebraic Geometry and Number Theory Seminar
 Sep. University of Virginia, Algebra Seminar
 Jul. Athens, Conference on Aspects of the Algebraic and Analytic Theory of Quadratic Forms
 May Elmau, Simons Symposium on Non-Archimedean and Tropical Geometry
 May Universität Ulm, Algebra Seminar
 Apr. Yale University, Algebraic and Tropical Geometry Seminar
 Apr. Brown University, Algebraic Geometry Seminar
 Apr. University of Pennsylvania, Galois Seminar
 Feb. Emory University, Algebra and Number Theory Seminar
 Feb. Columbia University, Algebraic Geometry Seminar
 Feb. NYU, Algebraic Geometry Seminar
 Jan. Atlanta, AMS/MAA Joint Meetings Contributed Talk Session “Algebraic Geometry”
 2016 Nov. Raleigh, AMS Special Session “Varieties, Their Fibrations, and Automorphisms in Mathematical Physics and Arithmetic Geometry.”
 Sep. Columbia-CUNY-NYU, Joint Number Theory Seminar
 Sep. NYU, Algebraic Geometry Seminar
 Sep. Burlington, conference on Kummer Classes and Anabelian Geometry
 Apr. Harrisonburg, SERMON XXIX
 Jan. Georgia Southern University, Colloquium
 2015 Dec. Bangalore, conference on Algebraic Geometry
 Nov. University of Maryland, Algebra and Number Theory Seminar
 Nov. New Brunswick, AMS Special Session “Advances in Valuation Theory”
 Jul. Salt Lake City, AMS Summer Research Institute on Algebraic Geometry
 Apr. University of Kentucky, Algebraic Geometry Seminar
 Apr. Yale University, Algebraic Geometry Seminar
 Mar. University of Chicago, Algebraic Geometry Seminar
 Mar. University of Michigan, Group, Lie, and Number Theory Seminar
 2014 Nov. Greensboro, AMS Special Session “Galois Theory and its Interactions with Algebra and Number Theory”
 Oct. Oberwolfach, conference on Valuation Theory and Its Applications
 Oct. CCR-Princeton, Colloquium

²T. Rabbani, “Unique minimal forcing sets and forced representation of integers by quadratic forms” *Rose-Hulman Undergrad. Math. J.* **17** (2016), no. 1, 1–14.

- Jul. Universität Ulm, Algebra Seminar
 Jun. Tel Aviv, ASM/IMU Joint Meetings Special Session “Field Arithmetic”
 May University of Virginia, Galois Seminar (4 talk series)
 Apr. University of Virginia, Algebra Seminar (3 talk series)
 Mar. University of Pennsylvania, Galois Seminar (3 talk series)
 Jan. Baltimore, AMS/MAA Joint Meetings Special Session “Algebraic Geometry”
 2013 Nov. University of South Carolina, Algebraic Geometry, Commutative Algebra, and Number Theory Seminar
 Nov. University of Georgia, Number Theory Seminar
 Nov. Emory University, Algebra Seminar
 Nov. Georgia Tech, Algebra Seminar
 Oct. University of Pennsylvania, Algebra Seminar
 Oct. Rice University, Colloquium
 Aug. Fort Collins, SIAM Algebraic Geometry Meeting Special Session “Arithmetic Geometry”
 Jun. Oberwolfach, conference on Arithmetic of Fields
 May Wesleyan University, Algebra Seminar
 May Stanford University, Number Theory Seminar
 Mar. Brown University, Number Theory Seminar
 Mar. NYU, Algebraic Geometry Seminar
 Feb. University of Virginia, Colloquium
 Jan. University of Hawaii, Manoa, Colloquium
 Jan. University of California, San Diego, Number Theory Seminar
 Jan. University of California, San Diego, Special Colloquium
 Jan. San Diego, AMS/MAA Joint Meetings Special Session “Witt Vectors, Lifting, and Descent”
 2012 Nov. University of Pennsylvania, Galois Seminar
 Jul. Universität Konstanz, Real Geometry and Algebra Seminar
 Jul. Universität Ulm, Algebra Seminar
 Jul. Max-Planck-Institut Für Mathematik, Number Theory Lunch Seminar
 Jun. Bordeaux, conference on Galois Covers and Deformations (plenary series with Stefan Wewers, as well as additional standard talk)
 Jun. Utrecht, Dutch Intercity Number Theory Seminar
 Feb. Luxembourg, Winter School on Galois Theory
 Feb. U.S. Naval Academy, Colloquium
 Jan. RWTH Aachen University, Constructive and Experimental Algebra Colloquium
 2011 Dec. Universität Heidelberg, Algebra and Number Theory Seminar
 Nov. Max-Planck-Institut Für Mathematik, Number Theory Lunch Seminar
 Apr. Columbia University, Algebraic Geometry Seminar
 Mar. University of Wisconsin-Madison, Number Theory Seminar
 Mar. University of Pennsylvania, Galois Seminar
 Feb. Wesleyan University, Algebra Seminar
 2010 Nov. Haverford and Bryn Mawr Colleges, Bi-Co Colloquium
 Oct. Harvard University, Number Theory Seminar
 Oct. IIAS Kyoto, conference on Galois Theory and Arithmetic Geometry
 Jul. Universität Ulm, Algebra Seminar

- Jun. Leibniz Universität Hannover, Algebraic Geometry Seminar
 Apr. University of Pennsylvania, Galois Seminar
 Mar. CIRM, Luminy, conference on Geometric and Differential Galois Theory
 Mar. CUNY Graduate Center, Number Theory Seminar
 Feb. Colorado State University, Colloquium
 Feb. Colorado State University, Algebra Seminar
 2009 Oct. Boca Raton, AMS Special Session “Arithmetic Geometry”
 Oct. Columbia University, Algebraic Geometry Seminar
 Jul. Journées de Géométrie Arithmétique de Rennes (poster)
 Feb. Oberwolfach, conference on Arithmetic of Fields
 Jan. University of Georgia, Number Theory/Arithmetic Geometry Seminar
 Jan. Washington, DC, AMS/MAA Joint Meetings Special Session “Group Actions on Curves”
 2008 Nov. University of Pennsylvania, Galois Seminar
 2007 Mar. Arizona Winter School Project Group, “Berkovich Spaces”
 2005 – 2008 University of Pennsylvania, various seminars, 15 expository talks

Teaching (as instructor of record)³

- 2017 Fall University of Virginia, Advanced Calculus and Linear Algebra I
 2016 Summer University of Virginia, Calculus II (Evaluation: 4.50/5)
 2016 Spring University of Virginia, Calculus III (Evaluation: 4.31/5)
 2016 Spring University of Virginia, Algebraic Number Theory (Evaluation: 4.88/5)
 2015 Fall University of Virginia, Bilinear Forms and Representation Theory (Evaluation: 5.00/5)
 2015 Spring University of Virginia, Linear Algebra (Evaluation: 4.58/5)
 2014 Fall University of Virginia, Algebraic Geometry (Evaluation: 4.88/5)
 2014 Fall University of Virginia, Galois Theory (Evaluation: 5.00/5)
 2014 Spring University of Virginia, Commutative Algebra (Evaluation: 4.00/5)
 2013 Fall University of Virginia, Linear Algebra (Evaluation: 4.92/5)
 2011 Spring Columbia University, Linear Algebra (Evaluation: 4.47/5)
 2011 Spring Columbia University, Introduction to Higher Mathematics (Evaluation: 4.70/5)
 2009 Fall Columbia University, Calculus II (two sections, Evaluation: 4.74/5)
 2007 Summer University of Pennsylvania, Calculus I (Evaluation: 3.59/4)
 2005 Summer University of Pennsylvania, Advanced Linear Algebra (Evaluation: 3.63/4)

Service (Profession Level)

- 2017 With Andrei Rapinchuk and Lloyd West, co-organized conference on “Elliptic Curves, Torsors, and L -Functions,” University of Virginia
 2016 NSF Panelist
 2015 With Frauke Bleher, Ted Chinburg, and Rachel Pries, co-organized conference on “Lifting Problems and Galois Theory,” BIRS (Banff)

³Anonymous student comments from Columbia University available at <http://culpa.info/professors/9790>.

- 2010 – Referee and pre-referee for *Advances in Mathematics*, *Algebra and Number Theory*, *Annales de l'Institut Fourier*, *Duke Mathematical Journal*, *European Journal of Mathematics*, *Glasgow Mathematical Journal*, *International Journal of Number Theory*, *International Mathematics Research Notices*, *Inventiones Mathematicae*, *Israel Journal of Mathematics*, *Journal de Théorie des Nombres de Bordeaux*, *Journal of Algebra*, *Journal of Algebraic Geometry*, *Journal of the AMS*, *Journal of Number Theory*, *Journal of Pure and Applied Algebra*, *Manuscripta Mathematica*, *Mathematical Journal of Okayama University*, *Mathematische Annalen*, *Mathematische Nachrichten*, *Mathematische Zeitschrift*, *Osaka Journal of Mathematics*, *Proceedings of the AMS*, *Research in Number Theory*, *Transactions of the AMS*, various conference proceedings.
- 2010 – 2015 Reviewer, *Zentralblatt*
- 2012 Assistant at Arizona Winter School (organized and ran problem sessions)
- 2009 – 2010 Columnist, AMS Graduate Student Blog
- 2009 Compiler of *Oberwolfach Reports* for the conference “The Arithmetic Of Fields”

Service (University Level)

- 2017 – University of Virginia, Undergraduate advisor (majors and non-majors)
- 2014 – University of Virginia, Galois-Grothendieck seminar co-organizer (sole organizer 2017-8)
- 2014 – University of Virginia, various thesis defense/oral exam committees
- 2013 – University of Virginia, Undergraduate math club co-chair
- 2014, 2017 University of Virginia, Postdoc hiring committee
- 2014 University of Virginia, Graduate admission committee
- 2008 University of Pennsylvania, spearheaded the development of Math 116/260 (along with Asher Auel and Shea Vela-Vick), a rigorous introduction to calculus, first offered in Fall 2008.

Service (K-12 Level)

- 2017 Along with Heidi Baumgartner, DaNel Hogan, Nancy Spillane, and Margaret Wilch, organized and ran two-week workshop in Liberia for science and math teachers.
- 2015 Wrote mathematics questions for Liberian Science Bowl.
- 2013 Along with Heidi Baumgartner, Eric Mannes, Sindy Tan, and Lynn Yi, organized and ran two-week workshop in Liberia for science and math teachers.
- 2011 Along with Michael Frank and Alison Kamhi, organized and ran two-week workshop in Liberia for science and math teachers.
- 2011 Mentored high school math student, supervised expository paper.
- 2010 – 2011 Mentored 5th grade student with strong interest in math.
- 2010 – 2011 Spoke to each of the 5th grade classes at Hunter College Elementary School about open problems in mathematics.
- 2010 Lectured to New York Math Circle (high school) on the life and mathematics of Évariste Galois.