Curriculum Vitae

August 17, 2015

Name Peter Louis Clark (professionally: Pete L. Clark)

Date and Place of Birth June 28, 1976; Philadelphia, Pennsylvania

Professional Preparation

1998–2003 HARVARD UNIVERSITY, Mathematics PhD 2003

1994–1998 UNIVERSITY OF CHICAGO, Mathematics BA, MS 1998

Appointments

2011–   ASSOCIATE PROFESSOR, University of Georgia
2009   VISITING SCHOLAR, Université de Bordeaux I

2006-2011 ASSISTANT PROFESSOR, University of Georgia

2006   POSTDOCTORAL FELLOW, Mathematical Sciences Research Institute

2003-2005 POSTDOCTORAL FELLOW, McGill University

2003   VISITING SCHOLAR, University of Pennsylvania.

Publications (•: current or former UGA student)

[1] P.L. Clark, *Period-index problems in WC-groups I: elliptic curves*, J. Number Theory 114 (2005), 193-208.

[2] G. Alon and P.L. Clark, *On the number of representations of an integer by a linear form*, Journal of Integer Sequences, Vol. 8 (2005), Article 05.5.2

[3] P.L. Clark, *On elementary equivalence, isomorphism and isogeny*, J. Théor. Nombres Bordeaux 18 (2006), 29-58.

[4] P.L. Clark, *There are genus one curves of every index over every number field*, J. Reine Angew. Math. 594 (2006), 201-206.

[5] P.L. Clark, *Galois groups via Atkin-Lehner twists*, Proc. Amer. Math. Soc. 135 (2007), 617-624.

[6] P.L. Clark, *Abelian points on algebraic varieties*, Math. Research Letters 14 (2007), 731-743.

[7] P.L. Clark, *On the Hasse principle for Shimura curves*, Israel J. Math. 171 (2009), 349–365.

[8] P.L. Clark and X. Xarles, *Local bounds for torsion points on abelian varieties*, Canad. J. Math. 60 (2008), no. 3, 532-555.

[9] P.L. Clark, *An "Anti-Hasse Principle" for Prime Twists*, Int. J. of Number Theory 4 (2008), 627-637.

[10] P.L. Clark, *On the indices of curves over local fields*, Manuscripta Math. 124 (2007), no. 4, 411–426.

[11] P.L. Clark, *Elliptic Dedekind domains revisited*, Enseign. Math. (2) 55 (2009), no. 3-4, 213–225.

[12] P.L. Clark and S. Sharif, *Period, index and potential Sha*, Algebra and Number Theory 4 (2010), no. 2, 151–174.

[13] P.L. Clark, *The period-index problem in WC-groups IV: a local transition theorem*, J. Théor. Nombres Bordeaux 18 (2010), 583–606.

[14] P.L. Clark, *Covering numbers in linear algebra*, American Math. Monthly 119 (2012), 65–67.

[15] P.L. Clark, *Euclidean quadratic forms and ADC-forms I.* Acta Arithmetica, 154 (2012), 137-159.

[16] P.L. Clark, J. Hicks•, K. Thompson• and N. Walters•, *GoNII: Universal quaternary quadratic forms.* Integers 12 (2012), A50, 16 pp.

[17] P.L. Clark, B. Cook• and J. Stankewicz•, *Torsion points on elliptic curves with complex multiplication (with an appendix by Alex Rice).* International Journal of Number Theory 9 (2013), 447–479.

[18] P.L. Clark, J. Hicks•, H. Parshall•, K. Thompson•, *GoNI: Primes represented by binary quadratic forms.* Integers 13 (2013), A37, 18pp.

[19] P.L. Clark, *Graph Derangements.* Open Journal of Discrete Mathematics 3 (2013), 183–191.

[20] A. Brunyate• and P.L. Clark, *Extending the Zolotarev-Frobenius Approach to Quadratic Reciprocity.* To appear in the Ramanujan Journal.

[21] P.L. Clark and N. Diepeveen, *Absolute Convergence Versus Convergence in Ordered Fields.* Amer. Math. Monthly 121 (2014), 909-916.

[22] P.L. Clark and W.C. Jagy, *Euclidean Quadratic Forms and ADC Forms II: integral forms.* Acta Arithmetica 164 (2014), 265–308.

[23] P.L. Clark, P. Corn, A. Rice• and J. Stankewicz•, *Computation on Elliptic Curves with Complex Multiplication.* LMS Journal of Computation and Mathematics 17 (2014),

509-535.

[24] P.L. Clark, *The Combinatorial Nullstellensätze Revisited*. Electronic Journal of Combinatorics. Volume 21, Issue 4 (2014). Paper #P4.15

[25] P.L. Clark, *Note on Euclidean order types*. Order 32 (2015), 157-178.

[26] P.L. Clark, A. Forrow and J.R. Schmitt, *Warning's Second Theorem with Restricted Variables*. To appear in Combinatorica.

[27] P.L. Clark and P. Pollack, *The truth about torsion in the CM case*. To appear in C. R. Math. Acad. Sci. Paris.

[28] P.L. Clark and A. Lacy, *There are genus one curves of every index over every IFG field*. To appear in J. Reine Angew. Math.

Submitted for Publication

[29] P.L. Clark, *Period-index problems in WC-groups II: abelian varieties.*

[30] P.L. Clark, *Curves over global fields violating the Hasse Principle.*

[31] P.L. Clark, *Abstract Geometry of Numbers: linear forms.*

[32] P.L. Clark, *Solution to the Inverse Mordell-Weil Problem for Elliptic Curves.*

[33] A. Bourdon, P.L. Clark and J. Stankewicz, *Torsion Points on CM elliptic curves over real number fields.*

[34] A. Bourdon, P.L. Clark and P. Pollack, *Anatomy of torsion in the CM case.*

[35] P.L. Clark and J. Voight, *Algebraic curves uniformized by congruence subgroups of triangle groups.*

[36] P.L. Clark, *Fattening up Warning's Second Theorem.*

In Preparation

[37] P.L. Clark, *The period-index problem in WC-groups III: biconic curves.*

[38] P.L. Clark, *Galois theory of arbitrary field extensions.*

[39] P.L. Clark and J. Hicks, *Abstract Geometry of Numbers: Hermite constants.*

[40] A. Bishnoi, P.L. Clark, A. Potokuchi and J.R. Schmitt, *Alon-Füredi revisited.*

[41] P.L. Clark and J. Stankewicz, *The twist anti-Hasse principle for Shimura Curves.*

Books In Preparation

[B4] P.L. Clark, *General Topology* Current draft: 209 pages.
Available at `http://math.uga.edu/~pete/pointset.pdf`

[B3] P.L. Clark, *Commutative Algebra*. Current draft: 321 pages.

Available at `http://math.uga.edu/~pete/integral.pdf`

[B2] P.L. Clark, *Honors Calculus*. Current draft: 350 pages.
Available at `http://math.uga.edu/~pete/2400full.pdf`

[B1] P.L. Clark, *Number Theory: A Contemporary Introduction*. Current draft: 270
pages. Available at `http://math.uga.edu/~pete/4400FULL.pdf`.

Teaching

2006–	**Tenure track / tenured professor**, University of Georgia
	Analytic Geometry and Calculus (Math 2200), Fall 2006, Fall 2009.
	Calculus II (Math 2260), Fall 2007, Fall 2013, Spring 2014, Fall 2014.
	Honors Calculus With Theory I (Math 2400), Fall 2011.
	Honors Calculus With Theory II (Math 2410), Spring 2012.
	Sequences and Series (Math 3100), Spring 2011.
	Introduction to Higher Mathematics (Math 3200), Spring 2009, Fall 2009.
	Number Theory (Math 4400/6400), Spring 2007, Spring 2009.
	Commutative Algebra (Math 8020), Spring 2011.
	Homological Algebra (Math 8030), Spring 2013.
	Algebraic Curves (Math 8320), Fall 2008.
	Algebraic Number Theory I (Math 8400), Spring 2014.
	Algebraic Number Theory II (Math 8410), Spring 2010.
	Complex Multiplication (Math 8410), Spring 2015.
	Topics in Arithmetic Geometry (Math 8430), Spring 2008.
	Modular Curves [jointly with R. Varley] (Math 8430), Spring 2012.
	Elliptic Curves (Math 8430), Fall 2012.
	Introduction to Model Theory (Math 8900), Summer 2010.
	Noncommutative Algebra (Math 8900), Summer 2011.
2003-2005	**Instructor**, McGill University
	Introduction to Shimura Varieties (Math 726), Fall 2005.
	Real Analysis II (Math 243), Winter 2005.
	Calculus I (Math 139), Winter 2005.
	Linear Algebra (Math 133), Fall 2003.
	Instructor, Concordia University
	Advanced Calculus (Engineering Math 233) Winter 2004.
1999-2003	**Teaching Fellow**, Harvard University
	Calculus (Math 1A & 1B), Fall 1999-2003.
	Course Assistant, Harvard University
	Class Field Theory (Math 255r), Fall 2001.

Synergistic Activities

(1) Leader of a 2011-2012 VIGRE research group on geometry of numbers and applications to number theory. Participants: Chris Drupieski (postdoc), Brian Bonsignore, Harrison Chapman, Jacob Hicks, Lauren Huckaba, David Krumm, Allan Lacy Mora, Nham Ngo, Hans Parshall, Alex Rice, James Henry Stankewicz, Katherine Thompson,

Lee Troupe, Nathan Walters and Jun Zhang (graduate students).

(2) Leader of a 2007-2008 VIGRE research group on rational points on CM elliptic curves. Participants: Patrick K. Corn (postdoc), Steve Lane, Jim Stankewicz, Nathan Walters, Steve Winburn, Ben Wyser (graduate students), Alex Rice (undergraduate).

(3) Leader of a 2009 working seminar on a preprint of Mazur and Rubin, *Ranks of twists of elliptic curves and Hilbert's 10th problem.*

(4) Leader of a 2005 summer research project for undergraduates at McGill University, funded by the Institut Scientifique des Mathématiques (ISM).
Topic: Almost sure limit sets of vector-valued Rademacher series.

Students

(1) Laura Nunley, MS, UGA, 2010.

(2) Jim Stankewicz, PhD, UGA, 2012.

(3) Jacob Hicks, PhD student, UGA, proposed graduation 2015.

(4) Allan Lacy Mora, PhD student, UGA, proposed graduation 2015.

(5) Marko Milosevic, PhD student, UGA, proposed graduation 2017.

(6) Lori D. Watson, PhD student, UGA, proposed graduation 2017/2018.

Other Service

(1) Academic Year Coordinator, AGANT RTG Grant, 2014–2015.

(2) UGA Math Department Personnel Committee: 2013–2015. Head, 2014–2015.

(3) UGA Math Department Graduate Committee (includes admissions): 2009–2013.

(4) UGA Math Department Colloquium Committee: 2008–2010.

(5) Qualifying Exam Committees: Complex Analysis, Topology, Algebra.

(6) On the Oral Exam Committee for: Steve Winburn, Nathan Walters, Jim Stankewicz, Matt Mastin, David Krumm, Kate Thompson, John Doyle, Joe Tenini, Adrian Brunyate, Jacob Hicks, Allan Lacy Mora, Hans Parshall, Kenny Jacobs, Lee Troupe, Patrick McFaddin, Abraham Varghese.

(7) Co-organizer with Dino Lorenzini, special session on arithmetic geometry, AMS Sectional Meeting, Boca Raton, FL, October/November 2009.

Grant Support

(1) Principal Investigator, NSF Research Grant DMS-0701771, 2007-2010. Extended to 2013

(2) UGA Provost Summer Research Grant, 2013.

(3) Co-Principal Investigator, NSF "AGANT" Research Training Grant DMS-1344994, 2014-2018.

Selected Talks

- AMS Sectional Meeting in Huntsville, AL, 3/15, Special Session on Quadratic Forms in Arithmetic and Geometry
  Title: Quadratic Forms and the Geometry of Numbers
- Colloquium, Dartmouth College, 10/14
  Title: "From Number Theory to Combinatorics Via Polynomial Functions
- Number Theory Seminar, Dartmouth College, 10/14
  Title: "Torsion Points on CM Elliptic Curves Over Real Number Fields"
- Discrete Mathematics Days of the Northeast, 9/14
  Title: "Around the Chevalley-Warning Theorem"
- Joint Meetings of the AMS and MAA, 1/13, Special Session on Arithmetic Theory of Quadratic Forms and Lattices
  Title: "Euclidean ideals and Euclidean forms"
- Algebra Seminar, University of Georgia, 8/12
  Title: "Classical Invariant Theory and the (Regular) Inverse Galois Problem"
- Number Theory Seminar, University of Georgia, 8/12
  Title: "Geometry of Numbers Debriefing: Part I"
- Number Theory Seminar, University of Texas, 4/12
  Title: "Arithmetic on a family of non-arithmetic curves"
- Colloquium, Willamette University, 3/12
  Title: "From cockroaches to marriage via graph derangements"
- Number Theory Seminar, University of Georgia, 1/12
  Title: "Quadratic reciprocity in abstract number rings"
- Joint Meetings of the AMS and MAA, 1/12, Special Session on Rational Points on Algebraic Varieties
  Title: "Euclidean quadratic forms and ADC-forms"
- Algebra Seminar, Wesleyan University, 10/11
  Title: "Euclidean quadratic forms and ADC-forms"

- Math Department Colloquium, Wesleyan University, 10/11
  Title: "Overview of the Local-Global Principle in Number Theory"
- Number Theory Seminar, MIT, 3/10
  Title: "The period-index problem for torsors under abelian varieties"
- Number Theory Seminar, University of Georgia, 9/09 (twice)
  Title: "Algebraic Curves Uniformized By Congruence Subgroups of Hyperbolic Triangle Groups"
- Arithmetic Geometry Seminar, Université de Bordeaux I, 6/09.
  Title: "Algebraic Curves Violating the Hasse Principle"
- Number Theory Seminar, University of Georgia, 2/09.
  Title: "Biconic Curves, Part I"
- Number Theory Seminar, University of Georgia, 11/08.
  Title: "Probabilistic Ideas and Methods in Analytic Number Theory."
- Number Theory Seminar, University of Georgia, 9/08.
  Title: "Quadratic twists, modular curves and the Inverse Galois Problem."
- VIGRE Graduate Seminar, University of Georiga, 9/08.
  Title: "Things to do with a conditionally convergent series."
- Number Theory Seminar, University of Georgia, 12/07.
  Title: "Torsion points on elliptic curves."
- Number Theory Seminar, University of Illinois at Chicago.
  Title: "On Curves Without Rational Points."
- Number Theory Seminar, University of Georgia, 10/07.
  Title: "Existence of abelian varieties with presecribed endomorphism algebras."
- Algebraic Geometry Seminar, University of Georgia, 10/07.
  Title: "Endomorphism algebras of abelian varieties."
- Number Theory Seminar, University of Georgia, 3/07.
  Title: "Ramanujan graphs" (two talks).
- Number Theory Seminar, University of Georgia, 2/07.
  Title: "Abelian points on algebraic varieties."
- VIGRE Research Group on Hodge Theory, University of Georgia, 11/06.
  Title: "Mumford-Tate groups and abelian varieties."
- Number Theory Seminar, University of Georgia, 8/06-9/06
  Title: "Selections from the arithmetic geometry of modular curves and Shimura curves."
- Algebra Seminar, University of Pennsylvania, 7/06.
  Title: "Rational points on Atkin-Lehner twists of modular curves"
- Seminar Talk, MSRI, 4/06.
  Title: "Period-index problems in Galois cohomology and geometry."
- Colloquium, Arizona State University, 2/06.
  Title: "Acquisition of rational points on algebraic curves."

- Colloquium, U.C. Santa Cruz, 2/06.
  Title: "Acquisition of rational points on algebraic curves."
- Number Theory Seminar, U.C. Berkeley, 2/06.
  Title: "Acquisition of rational points on algebraic curves."
- Number Theory Seminar, University of Georgia, 1/06
  Title: "The period-index problem in WC-groups."
- Colloquium, University of Georgia, 1/06
  Title: "Acquisition of rational points on algebraic curves."
- Québec-Vermont Number Theory Seminar, 4/05.
  Title: "Arithmetic of algebraic curves with Galois Belyi maps."
- Canadian Mathematical Society Winter Meeting, 12/04.
  Title: "On a question of Lang and Tate."
- Number Theory Seminar, McMaster University, 11/04.
  Title: "The period-index problem in Weil-Châtelet groups."
- Québec-Vermont Number Theory Seminar, 1/04.
  Title: "Period, index and potential Sha."
- Galois Seminar, University of Pennsylvania, 7/03.
  Title: "Period-index problems in WC-groups."
- Number Theory Workshop, Brown University, 5/03.
  Title: "Rational points on Atkin-Lehner quotients of Shimura curves."
- Number Theory Seminar, Harvard University, 5/03.
  Title: "Rational points on Atkin-Lehner quotients of Shimura curves."
- Galois Actions on Fundamental Groups Seminar, Harvard, 4/02.
  Title: "Fundamental groups in characteristic p."

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