

VITA

Robert Scott Rumely

Date and Place of Birth: June 23, 1952, Pullman, Washington

Academic Degrees:

B.A. 1974 Grinnell College, Grinnell, Iowa
Ph.D. 1978 Princeton University, Princeton, New Jersey

Professional Experience:

1978-80 C.L.E. Moore Instructor, M.I.T.
1980-81 Post-Doctoral Visiting Fellow, Harvard University
1981-85 Assistant Professor, University of Georgia
1985-90 Associate Professor, University of Georgia
1990- Professor, University of Georgia

Visiting Positions:

1984 University of Michigan, Brown University
1985 Macquarie University (Sydney), Tata Institute (Bombay), IHES (Paris)
1987 Mathematic Sciences Research Institute (Berkeley)
1998 University of Bordeaux I
1999 Institute Henri Poincaré and University of Paris VI
(Invited Professor: Special Trimestre on Diophantine Geometry)

Honors:

Creative Research Medal, University of Georgia, 1984
Alfred P. Sloan Foundation Fellow, 1984-87
McCay Award, UGA Mathematics Department, 1999

Research Grants:

NSF Research Grant, MCS 79-05942, 1979–1981
NSF Research Grant, MCS 82-01792, 1982–1984
Alfred P. Sloan Foundation, 1984–1987
NSF Research Grant, DMS 88-11507, 1988–1990
NSF Research Grant, DMS 91-03553, 1991–1994
NSF Research Grant, DMS 95-00892, 1995–1999
NSF Research Grant, DMS 00-70736, 2000–2003,
NSF Research Grant, DMS 03-00784, 2003–2005 (joint with M. Baker)
NSF Research Grant, DMS 06-01037, 2006–2010

Educational Grants:

UGA Curriculum Development Fund (with C. Penney and J. Gosselin), 1997,
“Development of the Calculus Lab”
UGA Curriculum Development Fund (with C. Penney and J. Gosselin), 1998,
“Implementation of the Calculus Lab”
Regents Teaching and Learning Grant (with C. Penney and J. Gosselin), 1998,
“Calculus Lab Conference for Georgia High School Teachers”

Dissertation:

Advisor, Goro Shimura: “An Explicit Formula for the Grössencharacter of an Abelian Variety with Complex Multiplication”, Princeton University, 1978.

Books, Monographs:

- (1) Capacity theory on algebraic curves, Springer Lecture Notes in Mathematics, No. 1378, (1989), 437 pp.
- (2) Existence of the sectional capacity (with C. F. Lau and R. Varley), *Memoirs of the American Mathematical Society* 145, no. 690 (2000), 130 pp.
- (3) Potential Theory and Dynamics on the Berkovich Projective Line (with M. Baker): in process of publication in the AMS Surveys and Monographs series, preliminary version available at www.arXiv.math.NT/0407433, 430 pp.
- (4) The Fekete-Szegö theorem with splitting conditions on curves, in preparation: 345 pp.

Articles:

- (1) Undecidability and definability in the theory of global fields, *Trans. A.M.S.* 262 (1980), 195-217.
- (2) A formula for the grössencharacter of a parametrized elliptic curve, *J. Number Theory* 17 (1983), 389-402.
- (3) On the grössencharacter of an abelian variety in a parametrized family, *Trans. A.M.S.* 276 (1983), 213-233.
- (4) On distinguishing prime numbers from composites (with Len Adleman and Carl Pomerance), *Annals of Mathematics* 117 (1983), 173-206.
- (5) Arithmetic over the ring of all algebraic integers, *J. Reine Angew. Math.* 368 (1986), 127-133.
- (6) Recent advances in primality testing, *Notices of the A.M.S.*, August 1983, 475-477.
- (7) Capacity theory on curves and canonical heights, *Sem. groupe d'analyse ultramétrique*, 12e annee, 1984/85, no 22.
- (8) Zeros of p-adic exponential polynomials II (with A.J. van der Poorten), *J. London Math Soc.* (2) 36 (1987), 1-15.
- (9) Remarks on generalized power sums (with A.J. van der Poorten), *Bull. Austral. Math. Soc.* 36 (1987), 311-329.
- (10) A note on the Hadamard kth root of a rational function (with A.J. van der Poorten), *J. Austral. Math. Soc.* 43 (1987), 314-327.
- (11) Notes on van der Poorten's proof of the Hadamard quotient theorem (I,II), *Sem. th. nombres Paris (1986-87)*, *Progress in Mathematics* 75, I: 349-382, II: 383-409, Birkhauser, Boston.
- (12) The capacity pairing (with T. Chinburg), *J. Reine Angew. Math.* 434 (1993), 1-44.
- (13) The well-adjusted models theorem over Dedekind Rings (with T. Chinburg), in: *Arithmetic Algebraic Geometry*, C. Van derGeer, F. Oort, J. Steenbrink, eds., Birkhauser, Boston (1991), 3-24.
- (14) On the relation between Cantor's capacity and Chinburg's sectional capacity, *Duke Mathematical Journal* 70 (1993), 517-574.

- (15) Numerical computations concerning the ERH, *Math. Comp.* 61 (1993), 415-440.
- (16) Arithmetic capacities on \mathbf{P}^N (with C. F. Lau), *M Math Zeit* 215 (1994), 533-560.
- (17) An intersection pairing for curves with analytic contributions from nonarchimedean places, in: *Canadian Mathematical Society Conference Proceedings* 15 (1995), AMS, 325-357.
- (18) Primes in arithmetic progression (with O. Ramare), *Math. Comp.* 65 (1996), 397-425.
- (19) On Bilu's Equidistribution Theorem, in: *Contemporary Mathematics* 23 (1999), T. Branson, ed. AMS, 159-166.
- (20) A Fekete-Szegö theorem with splitting conditions (Part I), *Acta Arithmetica* 93 (2000), 99-116.
- (21) A Fekete-Szegö theorem with splitting conditions (Part II), *Acta Arithmetica* 103 (2002), 347-410.
- (22) Capacity theory and arithmetic intersection theory (with T. Chinburg and C. F. Lau), *Duke Math. J.* 117 (2003), 229-285.
- (23) Equidistribution of small points on curves, rational dynamics, and potential theory (with M. Baker), *Annales de l'Institut Fourier* 56 (2006), 625-688.
- (24) Harmonic analysis on metrized graphs (with M. Baker), *Canadian Journal of Mathematics* 59 (2007), 225-275.
- (25) A Robin formula for the Fekete-Leja transfinite diameter, *Mathematische Annalen* 337 (2007), 729-738.
- (26) Transfinite diameter and the resultant (with L. DeMarco), *J. Reine Angew. Math.* 611 (2007), 145-161.
- (27) A finiteness property of torsion points (with M. Baker and S. Ih), *Algebra and Number Theory* 2(2008), 217-248.

Invited Lectures:

- (1) AMS Summer Conference on Diophantine Equations and Transcendence (Bowdoin College), July 1984, "Capacity Theory and Hilbert's 10th Problem".
- (2) University of Heidelberg, April 1985, "Capacity Theory on Algebraic Curves".
- (3) University of Leuven (Belgium), April 1985, "Capacity Theory on Curves, and the Fekete-Szegö Theorem".
- (4) University of Pennsylvania, November 1985, "Capacity Theory on Curves", "A Fekete-Szegö Theorem with Splitting Conditions".
- (5) Princeton University, November 1985, "Capacity Theory and a Rationality Criterion".
- (6) Cornell University, March 1986, "Hilbert's 10th Problem over the ring of all algebraic integers".
- (7) MSRI, February 1987, "Construction of Arakelov Green's Functions at Nonarchimedean Places".
- (8) University of Southern California, April 1987, "Capacity Theory and a Local-Global Criterion".
- (9) University of Illinois, April 1987, "Capacity Theory and Hilbert's 10th Problem", "Construction of Nonarchimedean Green's Functions".

- (10) UC Berkeley, May 1987, “An Introduction to Capacity Theory”.
- (11) Number Theory Conference (Laval University), July 1987, “The Capacity Pairing”.
- (12) 2nd Meeting of the Canadian Number Theory Society, Vancouver, B.C., August 1989, “The relation between Chinburg’s Sectional Capacity and Cantor’s capacity for algebraic curves”.
- (13) University of Michigan, November 1989, “A formula for the sectional capacity on curves”.
- (14) Oberwolfach meeting on Model theory, Oberwolfach, FRG, January 1990, “Capacity Theory and the local-global principle for $\tilde{\mathcal{O}}$ ”.
- (15) DIMACS Conference, Rutgers, April 1991, “Numerical Computations concerning the ERH”.
- (16) Instructional Conference on Arakelov Theory, ICTP, Trieste, Italy, September 1992, “Green’s functions”.
- (17) Arakelov Theory meeting, Bonn, Germany, June 1994, “Existence of the arithmetic degree for adelic metrized line bundles”.
- (18) 4th Meeting of the Canadian Number Theory Association, Halifax, N.S., July 1994, “An intersection pairing for curves”.
- (19) University of Bordeaux I, June/July 1998: “Recent Advances in Arithmetic Capacity Theory”, “On Bilu’s Equidistribution Theorem”, “Existence of the Sectional Capacity”
- (20) Trimestre on Diophantine Geometry, Institute Henri Poincaré (Paris), January 1999, 12-hour course “Arithmetic Capacity Theory”,
- (21) CUNY, March 1999, “Existence of the Sectional Capacity”.
- (22) Conference on Heights on Moduli Spaces, U.C. Irvine, October 2000, “Capacity Theory and Intersection Theory”.
- (23) Arakelov Theory meeting, Luminy, France, May 2003, “The Fekete-Szegö theorem with splitting conditions”.
- (24) Conference on Algebraic Dynamics, CUNY, New York, May 2004, “Foundations of analysis on the Berkovich Line”.
- (25) Pluripotential Theory Meeting, BIRS (Banff, Canada), September 2004, “The Sectional Capacity I, II”.
- (26) Workshop on p-adic dynamics, Wesleyan University, May 2005, “A finiteness property of torsion points”.
- (27) IV International Workshop on Dynamics, San Pedro, Chile, August 2005, “A finiteness property of torsion points”.
- (28) SERMON 2006, Furman University, Greenville, S.C., May 2006, “Ih’s finiteness conjecture”.
- (29) PANTS I, University of South Carolina, Columbia, S.C., December 2006, “The Fekete-Szegö theorem with Splitting Conditions on Curves”.
- (30) Thematic Program on Arithmetic Geometry, Hyperbolic Geometry, and Related Topics: Mini-workshop on p-adic dynamics, Fields Institute, Toronto, October 2008, “Berkovich Space and Dynamics on Berkovich Space”, “Nonarchimedean Potential Theory and Dynamical Applications”.

Referee for Funding Agencies:

NSF Proposal Reviewer, 1985–present
 NSA Proposal Reviewer, 1992–present
 NSF Post-Doctoral Fellowship Panel Member, 1998, 1999–2001
 NSA Grant Selection Panel Member, 2002

Referee for Mathematical Journals:

Annals of Mathematics, American Journal of Mathematics, Mathematische Zeitschrift, Compositio Mathematicae, Mathematische Annalen, Annales de l'Institut Fourier, International Mathematical Research Notices, Journal für die Reine und angewandte Mathematik, Journal of Number Theory, Mathematics of Computation, Annales Scientifiques de l'École Normale Supérieure, Functiones et Approximatio, Mathematical Research Letters, Journal of Algebra, American Mathematical Monthly, Linear Algebra and its Applications, Canadian Mathematical Bulletin, Experimental Mathematics

Reviewer for:

Mathematical Reviews,
 Zentralblatt für Mathematik

Book Reviews written:

- (1) Elliptic Curves over Number Fields with Prescribed Reduction Type, by M. Laska. Vieweg & Sohn, Braunschweig; distributed by Heyden & Son, Inc., Philadelphia, PA, 1983.
- (2) The Arithmetic of Elliptic Curves, by J. Silverman. Graduate Texts in Mathematics 106, Springer-Verlag, New York, 1986.

Doctoral Students:

Steve Donnelly (graduated August 2003):
 “Finding Elements of Given Order in Tate-Shafarevich Groups of Elliptic Curves”
 Milton Nash (graduated August 2004):
 “Special Values of Dirichlet L-series”
 Charles Pooh (graduated May 2005):
 “Capacity Theory and Algebraic Integers”
 Daeshik Park (graduated August 2006):
 “The Fekete-Szegő Theorem with Splitting Conditions
 on the Projective Line of Positive Characteristic p ”
 Zubeyir Cinkir (graduated August 2007):
 “The Tau Constant of Metrized Graphs”
 Stephen Winburn (current student)
 Nathan Walters (current student)

Masters Students:

Pongsak Ajjimarangsee (MAMS, August 1984):
 “The Theory and Implementation of the Simplex Algorithm”
 Chandra French (August 1994): “Non-quaternionic division algebras over \mathbf{Q} ”
 Mee Seong Im (May 2007): (Masters, Non-thesis)
 Renée Canfield (May 2008): “Three primality tests and Maple implementation”

External Member of Jury for Doctoral Theses:

- Pascal Autissier, (E. Ullmo, advisor; Université de Paris Sud), 2001,
 “Points entiers et théorèmes de Bertini Arithmétiques”
 Amaury Thuillier, (A. Chambert-Loir, advisor; Université de Rennes I), 2005,
 “Théorie du potentiel sur les courbes en géométrie analytique non archimédienne”

External Assessor for Promotions:

- Ernst Kani, (Full Professor, Queens University), 1997
 Paul van Wamelen, (Associate Professor, LSU), 2000
 Antoine Chambert-Loir, (Membership, Institut Universitaire de France), 2005
 Thomas Tucker, (Associate Professor, University of Rochester), 2006

Post-Docs Mentored:

- Thomas Tucker, 1998–2002
 Pierre Giguere, 1999–2001
 Nathan Ng, 2001–2002
 Su-Ion Ih, 2003–2005
 Clay Petsche, 2004–2006
 Matthew Smith, 2008–2009

Membership on UGA Doctoral Committees:

- Ioannis Argyros, Mo Hendon, Renet Madra, Reza Akbari, Deborah Sherman,
 Ronnie Burthe, Jim Hagland, Huasong Yin, Steve Clark, Jon Grantham,
 Anitha Srinivasan, Shuguang Li, David Penniston, Kevin James, Dina Khalil,
 Pam Cutter, Glenn Fox, Steve Donnelly, Milton Nash, Michael Beck,
 Wayne Tarrant, Jim Blair, Eric Pine, Sungkon Chang, Daeshik Park, Damon Gang,
 Heon Kim, Michael Guy, Adam Fletcher, Nausheen Lotia, Kenyon Platt,
 Charles Pooh, Zubeyir Cinkir, Juhung Yi, Steve Winburn, Jim Stankiewicz,
 Whitney Montgomery, Nathan Walters

Membership on UGA Masters’ Committees:

- Greg Harrell, Allison Williamson, Lydia Moore, Lisford Isaac, Kai Lemmle,
 Mee Seong Im, Renée Canfield

Undergraduate Students Advised:

- Chris Ruf, Shawn O’Dell, John Moragne, Tracy Baliles, Joey Kruppa,
 Hunter Weber, Sean Johnson, Ayla Shaw, Susan Kim, Amanda Karafotias,
 Amy Tillman, Dan Prest, Stephanie Eden, Katie Thompson

Teaching Faculty Memberships:

- UGA Graduate Faculty (Provisional Member), 1982–1985
 UGA Honors Faculty (Member), 1983–present
 UGA Graduate Faculty (Member), 1985–present

Administrative Experience:

- Graduate Coordinator for Mathematics, UGA, 1992–1995
 Interim Math 1113 Coordinator, UGA, Summer 2008

University Service:

Promotion and Tenure Committee (Division of Physical Sciences), 1997–1998
 Anderson Award Selection Committee, 1997, 2000
 Parking Services Task Force, 2001–2003
 Franklin College Faculty Senate Member, 2001–2004
 Professional Concerns Committee (Chair), 2002–2003
 Senate Committee on Promotion/Tenure/PTR Guidelines, 2002–2003
 President Pro Tem, 2003–2004
 Franklin College Dean Search Committee, 2004
 University Council Member, 2007–2010
 UGA Benefits Committee, 2008–2011

Departmental Service:

Mathematics Executive Committee 1995–1999, 2002–2005, 2008–2009
 (Vice-Chair, 1998–1999, 2004–2005)
 Mathematics Graduate Program Committee, 1986–1994
 Mathematics Personnel Committee, 1991–1992, 1999–2001, 2006–2008
 (Chair, 1999–2000, 2006–2008)
 Mathematics Curriculum Committee, 1986

 Cantrell Lecture Committee (Chair), 2007
 Academic Professional Search Committee (Chair), 2008

 Calculus Textbook Selection Committee, 1984, 1988
 Computer Advisory Committee, 1988
 Teaching Improvement Panel, 1990–1991
 Graduate Student Seminar Coordinator, 1989–1991
 Ad Hoc Calculus Lab Committee, 1996
 Calculus Lab Development Committee, 1997–1998
 Calculus Lab Conference for High School Teachers (Organizer), 1998

 REU on Metrized Graphs (joint with Matt Baker), June–July 2003
 SURP student Kevin Mills, June–July 2003
 REU on the Mathematics of Paper Folding, June–July 2009

 Created model WebWork Homework sets for Math 2250, Spring 2007
 Implemented Math 1113 in WebWork, Fall 2007

 General Sandy Beaver Professorship Dossier for John Hollingsworth, 1997
 Josiah Meigs Professorship Dossier for John Hollingsworth, 1998
 General Sandy Beaver Professorship Dossier for David Penney, 1999
 Creative Research Award Dossier for Andrew Granville, 2000
 Full Professor Promotion Dossier for Dino Lorenzini, 2001
 Russell Teaching Award Dossier for Matthew Baker, 2004
 Sloan Fellowship Dossier for Matthew Baker, 2004
 Research Professorship Dossier for Dino Lorenzini, 2004, 2005
 Josiah Meigs Professorship Dossier for Sybilla Beckmann-Kazez, 2006, 2007

Revised August 31, 2009