

## CURRICULUM VITAE

Ted Chinburg  
Department of Mathematics  
University of Pennsylvania  
Philadelphia, PA 19104-6395

Home address:  
506 Rockavon Rd., Narberth, Pa. 19072  
office: 215-898-8340  
home: 215-664-8031

### EDUCATION

B.S. Mathematics	Harvey Mudd College	June, 1975
M.A. Mathematics	Harvard University	June, 1979
Ph.D. Mathematics	Harvard University	November, 1980

### RESEARCH AREAS

Number theory, arithmetic and hyperbolic geometry

Particular interests: Galois module structure, values of L- functions, hyperbolic three-manifolds, arithmetic groups, deformation theory, group actions on varieties, Arakelov theory, capacity theory, cryptography

### HONORS AND GRANTS

SATC medium grants 2015, 2017

Simons Fellowship, 2015

U. Penn Dean's Fellowship, 2015

Kloosterman Professor, University of Leiden, 2009

NSF FRG grants, 2013-2016 and 2014-2017.

Individual NSF grants 1982-1989, 1992-2014

NSA grant 1990-1992

G. de B. Robinson research Award, Canadian Mathematical Society, 2002

University of Pennsylvania research grant, 1989

University of Pennsylvania Natural Sciences grant, 1986

MSRI mid-career fellowship, 1986

Sloan fellowship, 1985

### PROFESSIONAL EXPERIENCE

Editor, Transactions of the A. M. S., 2012 - present

Editor, Proceedings of the A. M. S., 2006 - 2010

Editor, J. Theorie de Nombres de Bordeaux, 2006 - 2017

Editor, Compositio Mathematica, 2002 - 2005

Visitor, U. C. Berkeley, Fall 2016

Visitor, University of Leiden, Spring 2016

Visitor, I.H.E.S. Fall 2015

## ACADEMIC POSITIONS

Professor, University of Pennsylvania, 1989-present

Associate Professor, Columbia University, Barnard College, 1987 - 1989

Assistant Professor, University of Pennsylvania, 1982 - 1987

Acting Assistant Professor, University of Washington, 1981 - 1982

## PH.D STUDENTS

1. S. Bae, Univ. of Penn. Thesis (June, 1988) "Conjectures of Lichtenbaum and Chinburg over Function Fields."
2. S. Kim, Univ. of Penn. Thesis (June, 1988) "A generalization of Frohlich's Theorem to wildly ramified quaternion extensions of  $\mathbb{Q}$ ."
3. D. Solomon, Brown U. Thesis (June, 1988) "Lichtenbaum's Conjecture for Dirichlet characters."
4. T. Schmidt, Univ. of Penn. Thesis (June, 1989) "Congruences for the values at  $s = 0$  of quaternionic representations."
5. T. Costa, Univ. of Penn. Thesis (June, 1989) "Class number congruences and modular forms."
6. A. Agboola, Columbia University. Thesis (June, 1991), "Abelian varieties and Galois module structure in Global Fields."
7. M. Rogers, Columbia University. Thesis (June, 1991), "On a Multiplicative-Addictive Galois Invariant."
8. G. Pappas, Columbia University. Thesis (June, 1992), "The bad reductions of some Hilbert-Blumenthal moduli varieties."
9. C.F. Lau, University of Pennsylvania. Thesis (June, 1993), "An arithmetic capacity on Grassmanian varieties."
10. S. Kwon, University of Pennsylvania. Thesis (June 1994), "Galois module structure of tame covers."
11. C. Xiao, University of Pennsylvania. Thesis (expected June 1997), "Galois module structure of elliptic curves."
12. S. Hu, University of Pennsylvania. Thesis (Dec. 1997), "On Eisenstein Cocycles."
13. M. Atria, University of Pennsylvania. Thesis (June 2002), "Improved lower bounds for the discriminants of number fields."
14. D. Glass, University of Pennsylvania. Thesis (June 2002), "Orthogonal epsilon constants for tame actions of finite groups on surfaces."
15. M. Sabitova, University of Pennsylvania. Thesis (June 2005), "Root numbers of abelian varieties and representations of the Weil-Deligne group".
16. H. Yuan, University of Pennsylvania. Thesis (June 2005), "Special Value Formulae of Rankin  $L$ -Functions".
17. D. Fithian, University of Pennsylvania. Thesis (June 2008), "Pseudomodular Fricke Groups".
18. A. Auel, University of Pennsylvania, Thesis (June 2009), "Cohomological invariants of  $\mathcal{L}$ -valued symmetric bilinear forms".
19. Y. Zhang, University of Pennsylvania, Thesis (June 2013), "Binary self dual codes."
20. P. Mostert, University of Pennsylvania, Thesis (June 2014), "Mixed Zeta Functions."

21. J. Sundstrom, University of Pennsylvania, Thesis (June 2016), “Lower bounds for relative regulators.”
22. B. Frankel, University of Pennsylvania, Thesis (June 2016), “Representations of fundamental groups of abelian varieties in characteristic  $p$ .”
23. S. Moore, University of Pennsylvania, “Galois module structure of Lubin-Tate formal groups,” (June 2017).

### SELECTED INVITED TALKS SINCE 2010

Winter	2019	Hebrew University
Fall	2019	Geometric methods in Representation theory, U. of Missouri
Summer	2019	Iwasawa 2019 meeting at the U. of Bordeaux
Spring	2019	A.M.S. special session on cryptography, U. of Hawaii
Fall	2018	Columbia University
Fall	2018	Rutgers University
Summer	2018	Satellite special session on modular forms, ICM 2018
Fall	2017	Rice University
Fall	2017	Oberlof meeting on topology and number theory
Summer	2017	I.M.P.A.
Spring	2017	U. of Georgia
Winter	2016	Asiacrypt 2016.
Fall	2016	Dean’s Speaker Series, S.U.N.Y. Binghamton
Summer	2016	B.I.R.S. meeting on Iwasawa theory
Spring	2016	Univ. of Fukuyoka
Winter	2015	Jerusalem University
Winter	2015	Israel Institute of Technology
Winter	2015	I. H. E. S.
Fall	2015	Univ. of Paris 7
Summer	2015	Univ. of California at Irvine
Summer	2015	King’s College
Spring	2015	Emory University
Spring	2015	University of Georgia
Spring	2015	U. C. L. A.
Summer	2014	University of Rome
Summer	2014	Oxford University
Summer	2014	University of Athens
Fall	2013	New York University
Summer	2013	University of Amsterdam
Summer	2013	Cabo Frio conference on algebraic and hyperbolic geometry
Spring	2013	Purdue University
Spring	2013	B.I.R.S. conference on arithmetic groups
Spring	2013	B.I.R.S. conference on Iwasawa theory
Fall	2012	New York University
Summer	2012	Université de Bordeaux
Summer	2012	Université de Rennes
Summer	2012	University of Leuven

Summer	2012	Leiden University
Spring	2012	University of Michigan
Fall	2011	Purdue University
Fall	2011	University of Southern California
Spring	2011	Luminy Conference Center, Luminy, France
Spring	2011	University of Massachusetts at Amherst
Spring	2011	Claremont Graduate Center
Fall	2010	NYU Graduate Center
Summer	2010	Lorenz Center, Univ. of Leiden
Summer	2010	University of Bordeaux I

## PUBLICATIONS OF TED CHINBURG

### A. Research articles published, accepted or submitted for publication.

1. "Multiplicatively Periodic Rings," with M. Henriksen, *Amer. Math. Monthly*, Vol. 83 n. 7 (1976), p. 547- 549.
2. "Sums of  $k$ -th powers in the ring of polynomials with integer coefficients," with M. Henriksen, *Acta Arith.* 29 (1976), p. 227-250. Research announcement, *Bull. Amer. Math. Soc.*, Vol. 81, #1 (1975), p. 107-110.
3. "'Easier' Waring problems for commutative rings," *Acta Arith.* 35 n. 4 (1979), p. 303-331.
4. "Stark's conjecture for L-functions with first order zeroes at  $s = 0$  ," *Advances in Math.* 48 (1983), p. 82-113.
5. "Derivatives of L-functions at  $s = 0$  ," *Compositio Math.* 48 (1983) p. 119-127.
6. "On the Galois structure of algebraic integers and S-units," *Inv. Math.* 74 (1983), p. 321-349.
7. "The Galois structure of S-units," *Sem. Th. de Nombres de Bordeaux*, annee 1982-1983, p. 40.01-40.21. Errata: *Mem. Amer. Math. Soc.* 77 (1989), no. 395, 154-155.
8. "Multiplicative Galois structure," *Lecture Notes in Mathematics* #1068, p. 23-32.
9. "Volumes of hyperbolic manifolds," *J. Diff. Geom.* 18 (1983), p. 783-789.
10. "Salem numbers and L-functions," *J. Number Theory*, Vol. 18, no. 2 (1984), p. 213-214.
11. "Multiplicative Galois module structure," *J. London Math. Soc.* (2) 29 (1984), p. 23-33.
12. "On the arithmetic of two constructions of Salem numbers," *Crelle's Journal* 348 (1984), p. 166-179.
13. "A small arithmetic hyperbolic three-manifold," *Proc. of the AMS*, Vol. 100, no. 1 (1984), p. 140-144.
14. "Exact sequences and Galois module structure," *Annals of Math.* 121 (1985), p. 351-376. Errata: *Mem. Amer. Math. Soc.* 77 (1989), no. 395, 154.
15. "Intersection theory and capacity theory on arithmetic surfaces," *Proceedings of the CMS summer seminar on Number Theory*, Vol. 7 (1987), p. 1-35.

16. "The smallest arithmetic hyperbolic three-orbifold," with E. Friedman, *Invent. Math.* 86 (1986), p. 507- 527.
17. "The analytic theory of multiplicative Galois structure," *Memoirs of the AMS*, Vol. 77, No. 395 (1989).
18. "A quaternionic L-value congruence," *J. Fac. Science of the Univ. of Tokyo, Sec. IA*, Vol. 36, No. 3 (1989), p. 765-787.
19. "Well adjusted models for curves over Dedekind rings," with R. Rumely, in *Arithmetic Algebraic Geometry*, G. Van der Geer ed., Birkhauser (1991), p. 3-24.
20. "*L*-functions and Galois modules," prepared in collaboration with D.J. Burns and N.P. Byott, in *L-functions and Arithmetic*, J. Coates and M.J. Taylor (eds.), Cambridge Univ. Press, Cambridge, p.110-123 (1991).
21. "Capacity theory on varieties," *Compositio Math.* 80 (1991), p.75-84.
22. "The capacity pairing," with R. Rumely, *J. Reine Angew. Math.* 434 (1993), 1-44.
23. "Galois structure of De Rham cohomology," *Sem. Th. Nombres, Bordeaux 4* (1991), 1-18.
24. "Equivariant Euler-Poincar characteristics and tameness," with B. Erez, *Asterisque* 209 (1992), 179- 194.
25. "Galois structure of De Rham cohomology of tame covers of schemes," *Ann. of Math.* 139 (1994), 443-490. Corrigendum: *Ann. of Math.* (2) 140 (1994), no. 1, 251.
26. "Closed hyperbolic 3-manifolds whose closed geodesics are simple," with Alan Reid, *J. of Diff. Geom.* 38 (1993), 545- 558.
27. "Tame actions of group schemes: Integrals and Slices," with B. Erez, G. Pappas and M. Taylor, *Duke Math. J.* 82:2 (1996), 269-308.
28. "Galois structure of K-groups of rings of integers," with G. Pappas, M. Kolster and V. Snaith, *C. R. Acad. Sci. Paris, t. 320, Série I*, (1995), 1435 - 1440.
29. "Adams operations and integral Galois representations," with D. Burns, *Amer. J. Math.* 118 (1996), no. 5, 925-962.
30. " $\epsilon$ -constants and the Galois structure of de Rham cohomology," with B. Erez, G. Pappas and M. Taylor, *Annals of Math.* 146 (1997), 411-473.
31. "Riemann-Roch type theorems for arithmetic schemes with a finite group action," with B. Erez, G. Pappas and M. Taylor, *J. Reine Angew. Math.* 489 (1997), 151-187.
32. "On the  $\epsilon$  -constants of a variety over a finite field," *Amer. Jour. Math.*, 119 (1997), 503-522.
33. "Galois structure of K-groups of rings of integers," with G. Pappas, M. Kolster and V. Snaith, *K-Theory* 14 (1998), no. 4, 319-369.
34. "Quaternionic exercises in K-theory Galois module structure," with M. Kolster, G. Pappas and V. Snaith, In: *Algebraic K-theory and its applications* (Trieste, 1997), 337-369, World Sci. Publishing, River Edge, NJ, 1999.
35. "Comparison of *K*-theory Galois module structure invariants," with M. Kolster, G. Pappas and V. Snaith, *Canad. J. Math.* 52 (2000), no. 1, 47-91.

36. “Nearly perfect complexes and Galois module structure,” with M. Kolster, G. Pappas and V. Snaith, *Compositio Math.* 119 (1999), no. 2, 133–155.
37. “An embedding theorem for quaternion algebras,” with E. Friedman, *J. London Math. Soc.* (2) 60 (1999), no. 1, 33–44.
38. “Operations on ring structures preserved by normalized automorphisms of group rings,” with F. Bleher, *J. Algebra* 215 (1999), no. 2, 531–542.
39. “Combinatorial families that are exponentially far from being listable in Gray code sequence,” with C. D. Savage and H. S. Wilf, *Trans. Amer. Math. Soc.* 351 (1999), no. 1, 379–402.
40. “Hilbert symbols, class groups and quaternion algebras,” with E. Friedman, *Colloque International de Theorie des Nombres (Talence, 1999)*. *J. Th. Nombres Bordeaux* 12 (2000), no. 2, 367–377.
41. “The finite subgroups of maximal arithmetic Kleinian groups,” with E. Friedman, *Ann. Inst. Fourier (Grenoble)* 50 (2000), no. 6, 1765–1798 (2001).
42. “Universal deformation rings and cyclic blocks,” with F. Bleher, to appear in *Math. Annalen*.
43. “ $\varepsilon$ -constants and the Galois structure of de Rham cohomology II,” with G. Pappas and M. Taylor *J. Reine Angew. Math.* 519 (2000), 201–230.
44. “On the  $\varepsilon$ -constants of arithmetic schemes,” with B. Erez, G. Pappas and M. Taylor, *Math. Ann.* **311** (1998), no. 2, 377–395.
45. “Localizations of Grothendieck groups and Galois structure,” with B. Erez, G. Pappas and M. Taylor, *Recent progress in algebra (Taejon/Seoul, 1997)*, 47–63, *Contemp. Math.*, 224, Amer. Math. Soc., Providence, RI, 1999.
46. “ $\varepsilon$ -constants and Arakelov Euler characteristics,” with G. Pappas and M. Taylor, *Math. Res. Lett.* 7 (2000), no. 4, 433–446.
47. “The arithmetic hyperbolic 3-manifold of smallest volume,” with E. Friedman, K. N. Jones and A. W. Reid, *Ann. Scuola Norm. Sup. Pisa Cl. Sci.* (4) 30 (2001), no. 1, 1–40.
48. “Locations of modules for Brauer tree algebras.” with F. Bleher, *J. Pure and Appl. Algebra* 169 (2002), no. 2 - 3, 109 - 135.
49. “Epsilon constants and equivariant Arakelov Euler characteristics,” with G. Pappas and M. Taylor, *Annales de l’Ecole Normale Superieure*, Volume 35, Issue 3 (2002), 307–352.
50. “Discriminants and Arakelov Euler characteristics,” with G. Pappas and M. Taylor. *Number theory for the millennium, I (Urbana, IL, 2000)*, 229–255, A K Peters, Natick, MA, 2002.
51. “Embedding Problems and Finite Quotients,” with D. Glass, *Pacific J. Math.* 205 (2002), no. 1, 31–41.
52. “Deformations and derived categories,” with F. Bleher, *C. R. Math. Acad. Sci. Paris* 334 (2002), no. 2, 97–100.

53. “Surreal Dimensions,” with A. Ovetsky, *Adv. in Appl. Math.* 29 (2002), no. 4, 604–619.
54. “Capacity Theory and Intersection Theory,” with R. Rumely and C. F. Lau, *Duke Math. J.* 117 (2003), no. 2, 229–285.
55. “Duality and Hermitian Galois module structure,” with G. Pappas and M. Taylor, *Proc. London Mathematical Society*, Volume 87, (2003), no. 1, 54–108.
56. “Applications of universal deformations to Galois theory,” with F. Bleher, *Comment. Math. Helv.* 78 (2003), no. 1, 45–64.
57. “Deformations with respect to an algebraic group,” with F. Bleher, *Illinois J. Math.* 47 (2003), no. 3, 899–919.
58. “Deformations and derived categories,” with F. Bleher, *Ann. Institut Fourier (Grenoble)* 55 (2005), 2285–2359.
59. “Can deformation rings of group representations not be local complete intersections?” in: *Problems from the workshop on Automorphisms of Curves (Leiden, 2004)*, Gunther Cornelissen and Frans Oort, eds.
60. “Pfaffians, the G-Signature Theorem and Galois Hodge discriminants,” with G. Pappas and M. Taylor, *Compositio Math.* 143 (2007), no. 5, 1213–1254.
61. “Galois structure of homogeneous coordinate rings,” with F. Bleher. To appear in the *Transactions of the A. M. S.*
62. “Universal deformation rings need not be complete intersections,” with F. Bleher, *C. R. Math. Acad. Sci. Paris* 342 (2006), 229–232.
63. “Universal deformation rings need not be complete intersections,” with F. Bleher, *Math. Ann.* 337 (2007), 739–767.
64. “Topological properties of Eschenburg spaces and 3-Sasakian manifolds,” with C. Escher and W. Ziller. *Math. Ann.* 339 (2007), no. 1, 3–20.
65. “Cusps of minimal non-compact arithmetic hyperbolic 3-orbifolds” with D. Long and A. Reid. *Pure and Applied Math Quarterly* 4 (2008), 10131031.
66. “Galois structure of homogeneous coordinate rings,” with F. Bleher, *Trans. Amer. Math. Soc.* 360 (2008), 6269–6301.
67. “Capping groups and some cases of the Fontaine-Mazur Conjecture,” with F. Bleher and J. Froelich, *Proc. Amer. Math. Soc.* 137 (2009), 1551–1560.
68. “Pullback moduli spaces,” with F. Bleher, *Comm. Algebra* 37 (2009), 1216–1239.
69. “Cubic structures, equivariant Euler characteristics and lattices of modular forms,” with G. Pappas and M. Taylor, *Ann. of Math. (2)* 170 (2009), no. 2, 561–608.
70. “Geodesics and commensurability classes of arithmetic hyperbolic 3-manifolds,” with E. Hamilton, D. Long and A. Reid, *Duke Math. J.*, Vol. 145, no. 1 (2008), 25–44.
71. “Oort groups and lifting problems,” with R. Guralnick and D. Harbater, *Compositio Mathematica*, vol. 114 (2008), 849–866.
72. “Picard-Vessiot extensions with specified Galois group,” with L. Juan and A. Magid, *Pacific Journal of Math*, Vol. 243, No. 2, (2009), 233242.

73. “ $K_1$  of a  $p$ -adic group ring I. The determinantal image,” with G. Pappas and M. Taylor, *J. Algebra* 326 (2011), 74112..
74. “Infinite easier Waring constants for commutative rings,” to appear in *Topology and its Applications*, arXiv:1007.2239.
75. “The local lifting problem for actions of finite groups on curves,” with R. Guralnick and D. Harbater, *Ann. Sci. c. Norm. Supr.* (4) 44 (2011), no. 4, 537605.
76. “Infinite easier Waring constants for commutative rings. *Topology Appl.* 158 (2011), no. 14, 18441847.
77. “Inverse problems for deformation rings,” with F. Bleher and B. de Smit, *Trans. Amer. Math. Soc.* 365 (2013), 6149-6165. .
78. “Obstructions for deformations of complexes,” with F. M. Bleher, *Ann. Inst. Fourier Grenoble* 63 (2013), 613–654.
79. “Finiteness theorems for deformations of complexes,” with F. M. Bleher, *Ann. Inst. Fourier Grenoble* 63 (2013), 573–612.
80. “Orthogonal representations of affine group schemes and twists of symmetric bundles,” with Philippe Cassou-Noguès, Baptiste Morin and Martin Taylor, submitted for publication.
81. “Finite Morphisms to Projective Space and Capacity Theory,” with L. Moret-Bailly, G. Pappas and M. Taylor, *J. Reine Angew. Math.* 727 (2017), 6984.
82. “Every Binary Self-Dual Code Arises From Hilbert Symbols,” with Ying Zhang, *Homology Homotopy Appl.* 14 (2012), no. 2, 189196.
83. “Small generators for  $S$ -unit groups of division algebras,” with M. Stover, *New York J. Math.* 20 (2014), 1175-1202.
84. “Higher adeles and non-abelian Riemann Roch,” with G. Pappas and M. Taylor, *Adv. Math.* 281 (2015), 928 - 1024.
85. “Derived category invariants and L-series,” with Ph. Cassou-Noguès, B. Erez and M. Taylor, *J. Lond. Math. Soc.* (2) 92 (2015), no. 2, 265-283.
86. “The classifying topos of a group scheme and invariants of symmetric bundles,” with Ph. Cassou-Nogues, B. Morin and M. Taylor, *Proc. Lond. Math. Soc.* (3) 109 (2014), no. 5, 10931136.
87. “Hopf algebras and quadratic forms,” with Ph. Cassou-Nogues, B. Morin and M. Taylor, *Illinois J. Math.* 58 (2014), no. 2, 413 - 442.
88. “Orbit closures and rational surfaces,” with F. Bleher and B. Huisgen-Zimmerman, *J. Pure Appl. Algebra* 220 (2016), no. 5, 17851812..
89. “The geometry of finite dimensional algebras with vanishing radical square,” with F. Bleher and B. Huisgen-Zimmerman, *J. Algebra* 425 (2015), 146178.
90. “ $K_1$  of a  $p$ -adic group ring II. The determinantal kernel  $SK_1$ ,” with G. Pappas and M. Taylor, *J. Pure Appl. Algebra* 219 (2015), no. 7, 2581 - 2623.
91. “Presentations for quaternionic  $S$ -unit groups,” with H. Friedlander, S. Howe, M. Kosters, B. Singh, M. Stover, Y. Zhang and P. Ziegler, *Exp. Math.* 24 (2015), no. 2, 175 - 182.
92. “Automorphisms of Harbater-Katz-Gabber curves,” with F. M. Bleher, B. Poonen and P. Symonds, *Math. Ann.* 368 (2017), no. 1-2, 811836.



93. “Higher Chern classes in Iwasawa theory,” with F. M. Bleher, R. Greenberg, M. Kakde, G. Pappas, R. Sharifi and M. J. Taylor, arXiv:1512.00273, to appear in the American Journal of Mathematics.
94. “Negative curves of small genus on surfaces,” with M. Stover, arXiv:1506.03299, to appear in Math Zeitschrift.
95. “Global Oort Groups,” with D. Harbater and R. Guralnick, *J. Algebra* 473 (2017), 374396..
96. “Cryptographic applications of capacity theory: On the optimality of Coppersmith’s method for univariate polynomials,” with B. Hemenway, N. Heninger and Z. Scherr, *Advances in cryptology - ASIACRYPT 2016. Part I*, 759788, Lecture Notes in Comput. Sci., 10031, Springer, Berlin, 2016.
97. “Geodesic curves on Shimura Surfaces,” with M. Stover, *Topology Proc.* 52 (2018), 113 - 121.
98. “The inverse problem of Galois theory for torsors,” with Ph. Cassou-Noguès, B. Morin and M. J. Taylor, to appear in “Questions in Arithmetic Algebraic Geometry,” F. Oort editor (2018).
99. “Azumaya algebras and canonical components,” with A. Reid and M. Stover, submitted for publication (2017).
100. “On the trace form of Galois algebras,” with Ph. Cassou-Nogués, B. Morin and M. J. Taylor, *Bull. London Math. Society*, 50, no. 5 (2018), 899–915.
101. “Galois structure of the holomorphic differentials of curves,” with F. M. Bleher and A. Kontogeorgis, under revision for the *J. of Number theory* (2019).
102. “Cup products in the étale cohomology of number fields,” with F. Bleher, R. Greenberg, M. Kakde, G. Pappas, R. Sharifi and M. Taylor, *New York Journal of Mathematics* 24 (2018), 514-542.
103. “On the slopes of the lattice of sections of Hermitian line bundles,” with C. Soulé and Q. Guignard, submitted for publication.
104. “Universal deformation rings, endo-trivial modules, and semidihedral and generalized quaternion 2-groups,” with F. Bleher and R. Soto, *J. Pure Appl. Algebra* 223 (2019), no. 5, 1897-1912.
105. “Exterior powers in Iwasawa theory,” with F. Bleher, R. Greenberg, M. Kakde, R. Sharifi and M. Taylor, submitted for publication.
106. “A case of the Rodriguez Villegas conjecture,” with E. Friedman and J. Sundstrom, submitted for publication.

## **B. Other research articles.**

1. “Mahler measures and derivatives of L-functions at non- positive integers,” manuscript (1984).

## **C. Expository articles and book reviews.**

1. “An introduction to Arakelov intersection theory,” in *Arithmetic Geometry*, G. Cornell and J.H. Silverman eds., Springer-Verlag, Berlin Heidelberg New York (1986), p. 289-307.

2. “Minimal models for curves over Dedekind rings,” in Arithmetic Geometry, G. Cornell and J.H. Silverman eds., Springer-Verlag, Berlin Heidelberg New York (1986), p. 309-326.
3. Book review of “Elliptic functions and rings of integers,” by M.J. Taylor and Ph. Cassou-Nogus, Bull. of the AMS Vol. 20. no. 1, p. 117-121 (1989).
4. Book review of “Capacity Theory on Algebraic Curves” by R. Rumely, Bull. of the AMS Vol. 26. no. 2, p.332-336 (1992).

### **COLLABORATORS OF TED CHINBURG SINCE 2011**

- |  |  |
|--|--|
| 1. Prof. F. Bleher, U. of Iowa.                | 15. Prof. M. Moret-Bailly, U. Rennes.      |
| 2. Prof. Ph. Cassou-Noguès,<br>U. de Bordeaux. | 16. Prof. B. Morin, U. Toulouse.           |
| 3. Prof. B. de Smit, U. Leiden                 | 17. Prof. A. Obus, U. Virginia             |
| 4. Prof. B. Erez, U. de Bordeaux               | 18. Prof. G. Pappas, Michigan State U.     |
| 5. H. Friedlander, Williams College            | 19. Prof. F. Pop, U. of Penn.              |
| 6. Prof. R. Guralnick, U.S.C.                  | 20. Prof. C. S. Rajan, TFR.                |
| 7. Prof. R. Greenberg, U. of Washington        | 21. Prof. Z. Scherr, U. Penn.              |
| 8. Prof. D. Harbater, U. of Penn.              | 22. Prof. R. Sharifi, U. of Arizona        |
| 9. Prof. N. Heninger, U. Penn.                 | 23. B. Singh, M.I.T.                       |
| 10. S. Howe, U. Chicago                        | 24. Prof. M. Stover, Temple U.             |
| 11. Prof. B. Huisgen-Zimmermann<br>U. C.S.B.   | 25. Prof. P. Symonds, Manchester U.        |
| 12. Prof. M. Kakde, Kings College              | 26. Y. Zhang,<br>Susquehanna International |
| 13. M. Kosters, U. Leiden                      | 27. Prof. M. Taylor, Oxford U.             |
| 14. Prof. B. Poonen, M.I.T.                    | 28. Prof. R. Pries, C. S. U.               |
|  | 29. P. Ziegler, E.T.H. Zurich              |

### **COURSES TAUGHT 2011 - 2019**

1. Math 721, third year graduate number theory, Spring 2011.
2. Math 371, second semester undergraduate algebra, L.P.S., Summer 2011.
3. Math 312, linear algebra, L. P. S., Fall 2011.
4. Math 602, first year graduate algebra, Fall 2011.
5. Math 114, second semester calculus, Spring 2012.
6. Math 210, math in the media, Spring 2012.
7. Math 702, second year graduate number theory, Fall 2012.
8. Math 703, second year graduate number theory, Spring 2013.
9. Math 212, the mathematics of half truths (Benjamin Franklin Seminar), Spring 2013.
10. Math 602, first year graduate algebra, Fall 2013.
11. Math 603, first year graduate algebra, Spring 2014
12. Math 210, math in the media, Spring 2014.
13. Math 350, number theory, Fall 2014.
14. Math 371, undergraduate abstract algebra, Fall 2014.
15. Math 210, math in the media, Spring 2015.
16. Sabbatical, May 2015 - January 2017.
17. Math 210, math in the media, Spring 2017.

18. Math 603, graduate algebra, Spring 2017.
19. Math 240E, third semester calculus for engineering, Fall 2017.
20. Math 210, math in the media, Spring 2018.
21. Math 702, graduate topics in algebra, Spring 2018.
22. Math 702, graduate topics in algebra, Fall 2018.
23. Math 240E, third semester calculus for engineering, Fall 2018.
24. Math 280, Entropy and the mathematics of evolution, Spring 2019.
25. Math 240E, third semester calculus for engineering, Fall 2019.
26. Math 502, masters level abstract algebra, Fall 2019.

### **SERVICE OF TED CHINBURG**

1. Math department graduate chair, 1990 - 1993.
2. Math department undergraduate chair, 1996 - 1999.
3. Personnel committee algebra representative, 2003 - 2006, 2018 - present.
4. Math department textbook committee chair, 1996 - present.
5. Math department undergraduate committee, 2000 - present.