

## Contents - Part 1

Foreword	xiii
Preface	xv
Permissions & Acknowledgments	xvii
Curriculum Vitae	xxiii
List of former students	xxv
[1] Fourier analysis in number fields and Hecke's zeta-functions	1
[2] (with E. Artin) A note on finite ring extensions	45
[3] On the relation between extremal points of convex sets and homomorphisms of algebras	51
[4] Genus change in inseparable extensions of function fields	55
[5] (with S. Lang) On Chevalley's proof of Luroth's theorem	63
[6] The higher dimensional cohomology groups of class field theory	67
[7] The cohomology groups of algebraic number fields	71
[8] (with Y. Kawada) On the Galois cohomology of unramified extensions of functions fields in one variable	73
[9] (with R. Brauer) On the characters of finite groups	95
[10] Homology of noetherian rings and local rings	103
[11] WC-groups over $\mathfrak{p}$ -adic fields	117
[12] (with A. Mattuck) On the inequality of Castelnuovo-Severi	129
[13] On the inequality of Castelnuovo-Severi, and Hodge's theorem	135
[14] (with S. Lang) Principal homogeneous spaces over abelian varieties	139
[15] Principal homogeneous spaces for abelian varieties	165
[16] (with A. Fröhlich and J.-P. Serre) A different with an odd class	167
[17] Nilpotent quotient groups	169

[18] Duality theorems in Galois cohomology over number fields	173
[19] (with S. Sen) Ramification groups of local fields	181
[20] (with J. Lubin) Formal complex multiplication in local fields	187
[21] Algebraic cycles and poles of zeta-functions	195
[22] (with J. Lubin and J.-P. Serre) Elliptic curves and formal groups	213
[23] On the conjectures of Birch and Swinnerton-Dyer and a geometric analog	221
[24] (with J. Lubin) Formal moduli for one-parameter formal Lie groups	239
[25] The cohomology groups of tori in finite Galois extensions of number fields	251
[26] Global class field theory	263
[27] Endomorphisms of abelian varieties over finite fields	305
[28] (with I. R. Šafarevič) The rank of elliptic curves	317
[29] Residues of differentials on curves	323
[30] $p$ -divisible groups	335
[31] The work of David Mumford	361
[32] (after T. Honda) Classes d'isogénie des variétés abéliennes sur un corps fini	367
[33] (with J.-P. Serre) Good reduction of abelian varieties	377
[34] (with F. Oort) Group schemes of prime order	403
[35] Symbols in arithmetic	425
[36] Rigid analytic spaces	437
[37] (with H. Bass) The Milnor ring of a global field	471
[38] Appendix to The Milnor ring of a global field	569
[39] Letter from Tate to Iwasawa on a relation between $K_2$ and Galois cohomology	579
[40] (with B. Mazur) Points of order 13 on elliptic curves	583
[41] The arithmetic of elliptic curves	593
[42] The 1974 Fields medals (I). An algebraic geometer	621
[43] Algorithm for determining the type of a singular fiber in an elliptic pencil	623
Letters	643
[L1] Letter to Dwork 2/13/1958	
[L2] Letter to Serre 8/4/1959	
[L3] Letter to Serre 6/18/1962	

- [L4] Letter to Serre 4/7/1963
- [L5] Letter to Serre 4/17/1963
- [L6] Letter to Serre 4/23/1963
- [L7] Letter to Serre 4/25/1963
- [L8] Letter to Serre 1/10/1964
- [L9] Letter to Serre 1/12/1965
- [L10] Letter to Serre 5/21/1965
- [L11] Letter to Springer 1/13/1966
- [L12] Letter to Serre 6/21/1968
- [L13] Letter to Dwork 11/15/1968
- [L14] Letter to Birch 3/19/1969
- [L15] Letter to Serre 7/22/1971
- [L16] Letter to Serre 3/26/1974
- [L17] Letter to Serre 5/2/1974
- [L18] Letter to Atkin 6/18/1974

## Contents - Part 2

Foreword	xiii
Preface	xv
Permissions & Acknowledgments	xvii
Curriculum Vitae	xxiii
List of former students	xxv
[44] Problem 9: The general reciprocity law	1
[45] Relations between $K_2$ and Galois cohomology	13
[46] Local constants	31
[47] On the torsion in $K_2$ of fields	75
[48] Fields medals (IV). An instinct for the key idea	95
[49] (with P. Cartier) A simple proof of the main theorem of elimination theory in algebraic geometry	99
[50] Number theoretic background	107
[51] The Harish-Satake transform on $GL_r$	133
[52] Brumer-Stark-Stickelberger	141
[53] On conjugation of abelian varieties of CM type	153
[54] On Stark's conjecture on the behavior of $L(s, \chi)$ at $s = 0$	159
[55] Variation of the canonical height of a point depending on a parameter	175

[56] (with S. Rosset) A reciprocity law for $K_2$ -traces	183
[57] (with B. Mazur) Canonical height pairings via biextensions	195
[58] (with B. Mazur and J. Teitelbaum) On $p$ -adic analogues of the conjectures of Birch and Swinnerton-Dyer	239
[59] (with B. Mazur) Refined conjectures of the “Birch and Swinnerton-Dyer type”	287
[60] (with B. Gross) Commentary on algebra	327
[61] (with M. Artin and M. Van den Bergh) Some algebras associated to automorphisms of elliptic curves	329
[62] (with B. Mazur) The $p$ -adic sigma function	383
[63] (with M. Artin and W. Schelter) Quantum deformations of $GL_n$	409
[64] (with M. Artin and M. Van den Bergh) Modules over regular algebras of dimension 3	427
[65] Conjectures on algebraic cycles in $l$ -adic cohomology	481
[66] (with S. P. Smith) The center of the 3-dimensional and 4-dimensional Sklyanin algebras	495
[67] The non-existence of certain Galois extensions of $\mathbb{Q}$ unramified outside 2	541
[68] (with M. Artin and W. Schelter) The centers of 3-dimensional Sklyanin algebras	545
[69] A review of non-archimedean elliptic functions	555
[70] (with M. Van den Bergh) Homological properties of Sklyanin algebras	579
[71] (with J. F. Voloch) Linear forms in $p$ -adic roots of unity	607
[72] Finite flat group schemes	621
[73] (with N. Katz) Bernard Dwork (1923-1998)	657
[74] Galois cohomology	663
[75] On a conjecture of Finotti	677
[76] Refining Gross’s conjecture on the values of abelian $L$ -functions	683
[77] (with M. Artin and F. Rodriguez-Villegas) On the jacobians of plane cubics	687
[78] (with B. Mazur and W. Stein) Computation of $p$ -adic heights and log convergence	707
Letters	745
[L19] Letter to Serre 10/1/1979	

- [L20] Letter to Serre 10/12/1979
- [L21] Letter to Serre 11/7/1979