

# Contents

Chapter I. Analytic aspects of $p$ -adic periods.	9
(Analysis)	
1. Analytic continuation; topological point of view.	10
2. Analytic continuation; algebraic approach.	21
3. The tale of $F(\frac{1}{2}, \frac{1}{2}, 1; z)$ .	35
4. Abelian periods as algebraic integrals.	42
5. Periods as solutions of the Gauss-Manin connection.	51
Chapter II. Introduction to the theory of $p$ -adic period mappings.	63
(Geometry)	
1. A survey of moduli and period mappings over $\mathbb{C}$ .	64
2. Preliminaries on $p$ -divisible groups.	70
3. A stroll in the crystalline world.	74
4. Moduli problems for $p$ -divisible groups.	82
5. $p$ -adic period domains.	86
6. The $p$ -adic period mapping and the Gauss-Manin connection.	89
7. $p$ -adic uniformization of Shimura varieties.	95
Chapter III. $p$ -adic orbifolds and monodromy.	109
(Group theory)	
1. Étale coverings and fundamental groups in $p$ -adic geometry.	110
2. Tempered fundamental groups.	124
3. Local and global monodromy of $p$ -adic differential equations.	139
4. Non-archimedean orbifolds, uniformizing differential equations and period mappings.	156
5. $p$ -adic triangle groups.	173
6. The tale of $F(\frac{1}{24}, \frac{7}{24}, \frac{5}{6}; z)$ (Escher's triangle group and its diadic and triadic twins).	188
Appendix A. Rapid Course in $p$ -adic Analysis.	205

by F. Kato

1. Introduction.	205
2. Rigid analytic spaces.	207
3. Relation with Formal Geometry.	210
4. Topology of Rigid Analytic Space.	214
5. Berkovich' approach to non-archimedean analysis	216
Appendix B. An overview of the theory of $p$ -adic uniformization.	219
	by F. Kato
1. Bruhat-Tits building.	219
2. Drinfeld symmetric space.	220
3. Uniformization.	224
4. Examples.	225
5. Mumford's fake projective plane.	226
Appendix C. $p$ -adic symmetric domains and Totaro's theorem	229
	by N. Tsuzuki
1. Weakly admissible filtered isocrystals.	229
2. Filtered isocrystals with $G$ -structure.	230
3. Totaro's theorem.	231
4. $p$ -adic symmetric domains.	234
Index	237
Bibliography	239