

Contents

Preface	ix
Chapter 1. Fractional operations	1
1.1. Weyl algebra	1
1.2. Laplace and gauge transformations and reduced representatives	2
1.3. Examples of ordinary differential operators	4
1.4. Ordinary differential equations	9
1.5. Okubo normal form and Schlesinger canonical form	13
Chapter 2. Confluences	17
2.1. Regular singularities	17
2.2. A confluence	21
2.3. Versal additions	22
2.4. Versal operators	23
Chapter 3. Series expansion and Contiguity relation	27
3.1. Series expansion	27
3.2. Contiguity relation	29
Chapter 4. Fuchsian differential equation and generalized Riemann scheme	31
4.1. Generalized characteristic exponents	31
4.2. Tuples of partitions	35
4.3. Conjugacy classes of matrices	37
4.4. Realizable tuples of partitions	38
Chapter 5. Reduction of Fuchsian differential equations	43
Chapter 6. Deligne-Simpson problem	55
6.1. Fundamental lemmas	55
6.2. Existence theorem	57
6.3. Divisible spectral types	62
6.4. Universal model	63
6.5. Simply reducible spectral type	66
Chapter 7. A Kac-Moody root system	69
7.1. Correspondence with a Kac-Moody root system	69
7.2. Fundamental tuples	78
Chapter 8. Expression of local solutions	81
Chapter 9. Monodromy	85
9.1. Middle convolution of monodromies	85
9.2. Scott's lemma and Katz's rigidity	91
Chapter 10. Reducibility	95
10.1. Direct decompositions	95