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	Nota di contenuto	Preface; Contents; I Basic Theory of Multiple Zeta Values; 0 The Time Before Multiple Zeta Values; 0.1 The Evaluation of Euler Double Sums; 0.2 Vandermonde Convolution; 0.3 Zeta Functions Associated with Multiple Zeta Values; 0.4 Messages from Modular Forms; 1 Introduction to the Theory of Multiple Zeta Values; 1.1 Introduction and Notations; 1.2 Drinfeld Integral Representations of Multiple Zeta Values; 1.3 Double Weighted Sum Formulas; 1.4 The Expectations of Binomial Distributions; 1.5 Exercises; 2 The Sum Formula; 2.1 Through the Integral Representations 2.2 Another Proof of the Sum Formula2.3 Evaluation of Multiple Zeta Values of Height One; 2.4 Exercises; II Shuffle Relations among Multiple Zeta Values; 3 Some Shuffle Relations; 3.1 Shuffle Relations of Multiple Zeta Values; 3.2 An Application of Double Weighted Sums; 3.3 Shuffle Relations of Two Sums of Multiple Zeta Values; 3.4 A Vector Version of the Restricted Sum Formula; 3.5 Exercises; 4 Euler Decomposition Theorem; 4.1 A Shuffle Relation with Two Parameters; 4.2 Integrals with Three Factors; 4.3 Generalizations of Euler Decomposition

Theorem

4.4 Applications of the Decomposition Theorem4.5 Applications of Another Decomposition Theorem; 4.6 Exercises; 5 Multiple Zeta Values of Height Two; 5.1 Sums of Multiple Zeta Values of Height Two; 5.2 Weighted Sums of Multiple Zeta Values of Height Two; 5.3 The Shuffle Product Formula of a Sum and Others; 5.4 Exercises; III Applications of Shuffle Relations in Combinatorics; 6 Generalizations of Pascal Identity; 6.1 Applications of Shuffle Products in Combinatorics; 6.2 Hypergeometric Distribution; 6.3 The Generating Function of Three Variables; 6.4 Exercises

7 Combinatorial Identities of Convolution Type7.1 Some Particular Combinatorial Identities; 7.2 A Generating Function for Products; 7.3 A Combinatorial Identity of Convolution Type; 7.4 Another Generating Function of Three Variables; 7.5 Exercises; 8 Vector Versions of Some Combinatorial Identities; 8.1 The Shuffle Product of Two Sums; 8.2 More Combinatorial Identities of Convolution Type; 8.3 Vector Versions of Pascal Identity; 8.4 Problems on Combinatorial Identity; Appendices; A Singular Modular Forms on the Exceptional Domain; A.1 Cayley Numbers and Integral Cayley Numbers

A.2 The Exceptional DomainA.3 The Theory of Jacobi Forms; A.4 A Final Application; Appendix (i): Jacobi Forms over Cayley Numbers; Appendix (ii): Basic Properties of a Set of Theta Series; B Shuffle Product Formulas of Multiple Zeta Values; B.1 Introduction; B.2 The Shuffle Product Formula of Two Multiple Zeta Values; B.3 Some Basic Shuffle Relations; B.4 Shuffle Relations of Two Sums of Multiple Zeta Values; B.5 The Generating Function of Height One; Appendix (i): Double Weighted Sum Formulas; Appendix (ii): Evaluations of Some Particular Integrals

C The Sum Formula and Their Generalizations

| Sommario/riassunto | This is the first book on the theory of multiple zeta values since its birth around 1994. Readers will find that the shuffle products of multiple zeta values are applied to complicated counting problems in combinatorics, producing numerous interesting identities that are ready to be used. This will provide a powerful tool to deal with problems in multiple zeta values, both in evaluations and shuffle relations. The volume will benefit graduate students doing research in number theory. |