

Stanley, Richard P.

Enumerative combinatorics. Volume 2. (English) Zbl 0928.05001

Cambridge Studies in Advanced Mathematics. 62. Cambridge: Cambridge University Press. xii, 581 p. (1999).

[Compare [Zbl 0608.05001](#) and [Zbl 0889.05001](#) for the first edition of Volume 1]

This long awaited Volume 2 of Enumerative Combinatorics by Richard Stanley was well worth the wait! At 581 pages it is almost twice the length of Volume 1. Much of the increase in size has to do with the inclusion of even more exercises and solutions than in Volume 1. These carefully selected and organized problems along with their solutions is one of the assets of this book as a graduate text.

Volume 2 has just three chapters. Chapters 5 (Trees and the Composition of Generating Functions) and 6 (Algebraic, D-Finite, and Noncommutative Generating Functions) continue the development of generating functions initiated in the last chapter of Volume 1. Chapter 7 (Symmetric Functions) includes many traditional topics (e.g. Pólya Enumeration) but in this newly designed framework of symmetric functions. Seeing so many seemingly disjoint topics arranged and unified by one central theme makes reading Chapter 7 a joy.

This magnificent two-volume work is best described by a quote from Gian-Carlo Rota's Forward to Volume 2: I find it impossible to predict when Richard Stanley's two-volume exposition of combinatorics may be superseded. No one will dare try, let alone be able, to match the thoroughness of coverage, the care for detail, the definitiveness of proof, the elegance of presentation.

Reviewer: [J.E.Graver \(Syracuse\)](#)

MSC:

- [05-02](#) Research exposition (monographs, survey articles) pertaining to combinatorics
- [05A15](#) Exact enumeration problems, generating functions
- [05A16](#) Asymptotic enumeration
- [06A07](#) Combinatorics of partially ordered sets
- [05E05](#) Symmetric functions and generalizations

Cited in **15** Reviews
Cited in **1233** Documents

Keywords:

[enumerative combinatorics](#); [generating functions](#); [Pólya enumeration](#); [exercises](#); [symmetric functions](#)