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# Discrete Random Structures



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### **Random Discrete Structures**

R.L. Graham

#### **Random Discrete Structures:**

Random Discrete Structures David Aldous, Robin Pemantle, 2012-12-06 The articles in this volume present the state of the art in a variety of areas of discrete probability including random walks on finite and infinite graphs random trees renewal sequences Stein's method for normal approximation and Kohonen type self-organizing maps. This volume also focuses on discrete probability and its connections with the theory of algorithms Classical topics in discrete mathematics are represented as are expositions that condense and make readable some recent work on Markov chains potential theory and the second moment method This volume is suitable for mathematicians and students On the Evolution of Random Discrete Structures Deryk Osthus, 2000 Probability on Discrete Structures Harry Kesten, 2013-03-14 Most probability problems involve random variables indexed by space and or time These problems almost always have a version in which space and or time are taken to be discrete This volume deals with areas in which the discrete version is more natural than the continuous one perhaps even the only one than can be formulated without complicated constructions and machinery The 5 papers of this volume discuss problems in which there has been significant progress in the last few years they are motivated by or have been developed in parallel with statistical physics. They include questions about asymptotic shape for stochastic growth models and for random clusters existence location and properties of phase transitions speed of convergence to equilibrium in Markov chains and in particular for Markov chains based on models with a phase transition cut off phenomena for random walks The articles can be read independently of each other Their unifying theme is that of models built on discrete spaces or graphs Such models are often easy to formulate Correspondingly the book requires comparatively little previous knowledge of the machinery of probability Fuzzy Discrete Structures Davender S. Malik, John N. Mordeson, 2013-11-11 This ambitious exposition by Malik and Mordeson on the fuzzification of discrete structures not only supplies a solid basic text on this key topic but also serves as a viable tool for learning basic fuzzy set concepts from the ground up due to its unusual lucidity of exposition While the entire presentation of this book is in a completely traditional setting with all propositions and theorems provided totally rigorous proofs the readability of the presentation is not compromised in any way in fact the many ex cellently chosen examples illustrate the often tricky concepts the authors address The book s specific topics including fuzzy versions of decision trees networks graphs automata etc are so well presented that it is clear that even those researchers not primarily interested in these topics will after a cursory reading choose to return to a more in depth viewing of its pages Naturally when I come across such a well written book I not only think of how much better I could have written my co authored monographs but naturally how this work as distant as it seems to be from my own area of interest could nevertheless connect with such Before presenting the briefest of some ideas in this direction let me state that my interest in fuzzy set theory FST has been since about 1975 in connecting aspects of FST directly with corresponding probability concepts One chief vehicle in carrying this out involves the concept of random sets

Probability on Discrete Structures Harry Kesten, 2004 Most probability problems involve random variables indexed by space and or time These problems almost always have a version in which space and or time are taken to be discrete This volume deals with areas in which the discrete version is more natural than the continuous one perhaps even the only one than can be formulated without complicated constructions and machinery The 5 papers of this volume discuss problems in which there has been significant progress in the last few years they are motivated by or have been developed in parallel with statistical physics They include questions about asymptotic shape for stochastic growth models and for random clusters existence location and properties of phase transitions speed of convergence to equilibrium in Markov chains and in particular for Markov chains based on models with a phase transition cut off phenomena for random walks The articles can be read independently of each other Their unifying theme is that of models built on discrete spaces or graphs Such models are often easy to formulate Correspondingly the book requires comparatively little previous knowledge of the machinery of probability

Ramsey Theory for Discrete Structures Hans Jürgen Prömel, 2013-12-04 This monograph covers some of the most important developments in Ramsey theory from its beginnings in the early 20th century via its many breakthroughs to recent important developments in the early 21st century The book first presents a detailed discussion of the roots of Ramsey theory before offering a thorough discussion of the role of parameter sets It presents several examples of structures that can be interpreted in terms of parameter sets and features the most fundamental Ramsey type results for parameter sets Hales Jewett's theorem and Graham Rothschild1s Ramsey theorem as well as their canonical versions and several applications Next the book steps back to the most basic structure to sets It reviews classic results as well as recent progress on Ramsey numbers and the asymptotic behavior of classical Ramsey functions In addition it presents product versions of Ramsey s theorem a combinatorial proof of the incompleteness of Peano arithmetic provides a digression to discrepancy theory and examines extensions of Ramsey's theorem to larger cardinals The next part of the book features an in depth treatment of the Ramsey problem for graphs and hypergraphs It gives an account on the existence of sparse and restricted Ramsey theorem s using sophisticated constructions as well as probabilistic methods Among others it contains a proof of the induced Graham Rothschild theorem and the random Ramsey theorem The book closes with a chapter on one of the recent highlights of Ramsey theory a combinatorial proof of the density Hales Jewett theorem This book provides graduate students as well as advanced researchers with a solid introduction and reference to the field **Extremal Results for Random Discrete Structures** Mathias Schacht, 2009 Discrete Structures and Their Interactions Jason I. Brown, 2016-04-19 Discover the Connections between Different Structures and FieldsDiscrete Structures and Their Interactions highlights the connections among various discrete structures including graphs directed graphs hypergraphs partial orders finite topologies and simplicial complexes It also explores their relationships to classical areas of mathematics **Ramsey Properties of** Random Discrete Structures Ehud Friedgut, Vojtěch Rödl, Mathias Schacht, 2009 Mathematics and Computer

Science II Brigitte Chauvin, Philippe Flajolet, Daniele Gardy, Abdelkader Mokkadem, 2012-12-06 This is the second volume in a series of innovative proceedings entirely devoted to the connections between mathematics and computer science Here mathematics and computer science are directly confronted and joined to tackle intricate problems in computer science with deep and innovative mathematical approaches The book serves as an outstanding tool and a main information source for a large public in applied mathematics discrete mathematics and computer science including researchers teachers graduate students and engineers It provides an overview of the current questions in computer science and the related modern and powerful mathematical methods The range of applications is very wide and reaches beyond computer science Lectures on Probability Theory and Statistics Evarist Giné, Geoffrey R. Grimmett, Laurent Saloff-Coste, 2006-11-14 Nur Contents Advances in Nonlinear Dynamics, Volume III Walter Lacarbonara, 2024-05-01 This third of three volumes aufnehmen presents papers from the third series of NODYCON to be held in June of 2023 The conference papers reflect a broad coverage of topics in nonlinear dynamics both traditionally placed in established streams of research as well as they stand as newly explored and emerging venues of research These include Multi scale dynamics multiple time space scales large system dynamics Experimental dynamics benchmark experiments experimental methods instrumentation techniques measurements in harsh environments experimental validation of nonlinear models Reduced order modeling center manifold reduction nonlinear normal modes normalforms Systems with time and or space delays Nonlinear interactions in multi dof systems parametric vibrations multiple external andautoparametric resonances Computational techniques efficient algorithms use of symbolic manipulators integration of symbolic manipulation and numerical methods use of parallel processors Nonlinear system identification parametric nonparametric identification data drivenidentification Multibody dynamics rigid and flexible multibody system dynamics impact and contactmechanics tire modeling railroad vehicle dynamics biomechanics applications computational multibody dynamics Fluid structure interaction Nonlinear wave propagation in discrete and continuous media

Handbook of Combinatorics R.L. Graham,1995-12-11 Handbook of Combinatorics 
Volume 1 Bozzano G Luisa,1995-12-11 Handbook of Combinatorics Volume 1 focuses on basic methods paradigms results issues and trends across the broad spectrum of combinatorics The selection first elaborates on the basic graph theory connectivity and network flows and matchings and extensions Discussions focus on stable sets and claw free graphs nonbipartite matching multicommodity flows and disjoint paths minimum cost circulations and flows special proof techniques for paths and circuits and Hamilton paths and circuits in digraphs The manuscript then examines coloring stable sets and perfect graphs and embeddings and minors The book takes a look at random graphs hypergraphs partially ordered sets and matroids Topics include geometric lattices structural properties linear extensions and correlation dimension and posets of bounded degree hypergraphs and set systems stability transversals and matchings and phase transition The manuscript also reviews the combinatorial number theory point lattices convex polytopes and related complexes and extremal problems in

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