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Distribution of Sequences: A Sampler

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The monograph covers material scattered throughout books and journals and focuses on the distribution properties of sequences which may be expressed in terms of distribution function, upper and lower distribution function, the discrepancy, diaphony, dispersion etc. The individual character of sequences reflected in their distribution properties may be an object of study from various points of view, and as such they are often the primary goal of investigation. In that case the studied properties are caught in separate results and are consequently accessible in a displayed form. On the other hand, the various distribution properties of sequences play only a subsidiary role in proofs and thus remain often hidden and are not manifested in a visible form. The enormous wealth of information contained in both cases may be of value not only to those working directly in the field, but also to those working in related branches of number theory, combinatorics, real or numerical analysis in the process of finding sequence possessing the required properties. Last, but not least browsing throughout the book may provide the impetus for prospective further research. This is what we hope may address a wide class of working mathematicians.

Contents: Aspects of distribution properties of one-dimensional or multi-dimensional sequences · Sequences involving logarithmic functions, trigonometric functions, polynomials, sum-of-digits functions, integer part function, number-theoretic functions, primes, normal numbers, the van der Corput sequence, pseudorandom number generators · Properties of sequences: low discrepancy sequences, good lattice points, nets, lattice rules, completely uniformly distributed sequences, block sequences, circle sequences · Complete mathematical description of the sequences · Characterizations of currently known distribution properties · History, development, and open problems of referred to sequences