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Random polynomials, by A. T. Bharucha-Reid and M. Sambandham. Academic Press, Orlando, 1986, xv + 206 pp., $59.00 cloth, $32.95 paper. ISBN 0-12-095710-8.

In describing a physical phenomenon, mathematical equations come into the picture whose coefficients carry some physical significance. These coefficients are random variables following some probability distributions, since they are computed from experimental data or from natural observations. Thus random equations arise from many applied problems in mathematical physics, engineering and statistics. A polynomial whose coefficients are random variables is called a random polynomial. Then the coefficients are subject to random error. Although there are a lot of applications of random polynomials in various branches of science and technology, it is only recently that attempts have been made to develop the theory of random equations. The study of random algebraic polynomials was initiated by Bloch and Pólya [Proc. London Math. Soc. **33** (1932), 102–114] in 1932. Motivated by this work, the systematic study of random algebraic polynomials was initiated by Littlewood and Offord [J. London Math. Soc. **13** (1938), 288–295] in 1938. At present active research is being carried out in several countries including United States, Great Britain and India. Yet no comprehensive treatment of this subject was so far available in book form.

Using the notation of the book, we take our random polynomial in the form

$$F_n(z,\omega) = \sum_{k=0}^{n} a_k(\omega) z^k$$

where the coefficients $a_k(\omega)$ are random variables.

In the beginning the authors start explaining how certain concrete situations give rise to algebraic polynomials and outline a brief history of the use of probabilistic methods in the study of algebraic polynomials. The study of random algebraic polynomials gives rise to other types of random polynomials such as random trigonometric polynomials, random orthogonal polynomials and random Bernstein polynomials. The basic definitions and properties of random algebraic polynomials are introduced. The idea of random power series is introduced as a generalisation of random algebraic polynomials, and Hammersley's theorem that the zeros are Borel measurable functions of the coefficients $a_0(\omega), a_1(\omega), \ldots, a_n(\omega)$ is stated. A shorter proof by Kannon is given. Continuity, separability and measurability of random algebraic polynomials are considered. It is shown that under certain conditions algebraic polynomials are martingales.

A random matrix is defined as a matrix whose elements are random variables or random functions. Random algebraic polynomials arise in the spectral theory of random matrices. It is pointed out that any matrix associated with a real (i.e., concrete) problem in the sciences, engineering,