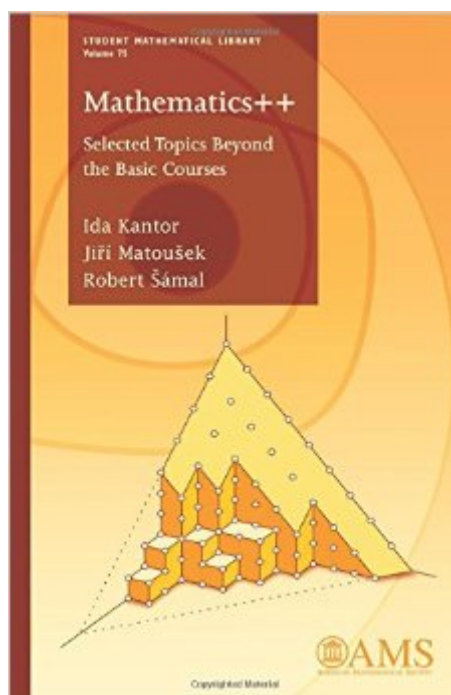# Mathematics++: Selected Topics Beyond The Basic Courses (Student Mathematical Library)

Synopsis

Mathematics++ is a concise introduction to six selected areas of 20th century mathematics providing numerous modern mathematical tools used in contemporary research in computer science, engineering, and other fields. The areas are: measure theory, high-dimensional geometry, Fourier analysis, representations of groups, multivariate polynomials, and topology. For each of the areas, the authors introduce basic notions, examples, and results. The presentation is clear and accessible, stressing intuitive understanding, and it includes carefully selected exercises as an integral part. Theory is complemented by applications-some quite surprising-in theoretical computer science and discrete mathematics. The chapters are independent of one another and can be studied in any order. It is assumed that the reader has gone through the basic mathematics courses. Although the book was conceived while the authors were teaching Ph.D. students in theoretical computer science and discrete mathematics, it will be useful for a much wider audience, such as mathematicians specializing in other areas, mathematics students deciding what specialization to pursue, or experts in engineering or other fields.

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