ΕΙΣΑΓΩΓΗ ΣΤΗ ΘΕΩΡΙΑ ΜΕΓΑΛΩΝ
ΑΠΟΚΛΙΣΕΩΝ

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Abstract

It is common in Probability Theory that the distribution of random variables concentrates around a typical value, in the limit of some parameter. A classic example is the law of large numbers, by which the average of independent, identically distributed random variables concentrates around their common mean, as their number tends to infinity. Whenever we can infer an asymptotically typical behaviour, it is natural to ask about typical fluctuations, as well as the probability to observe a large deviation from the typical behaviour. This question, that is the asymptotic analysis of rare events and its consequences, is the central question of the Theory of Large Deviations. More than an area of Probability Theory, the Theory of Large Deviations is a set of principles, ideas and tools that can be useful in very diverse areas of Probability, and, in this sense it intersects most areas of Probability Theory. The aim of this book is to introduce the reader to the Theory of Large Deviations, as well as to showcase its many applications, which even extend to other scientific disciplines.