

图书基本信息

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内容概要

Newton's fundamental discovery, the one which he considered necessary to keep secret and published only in the form of an anagram, consists of the following: *Data aequatione quocunque fluentes quantitates involvente fluxiones invenire et vice' versa*. In contemporary mathematical language, this means: "It is useful to solve differential equations". At present, the theory of differential equations represents a vast conglomerate of a great many ideas and methods of different nature, very useful for many applications and constantly stimulating theoretical investigations in all areas of mathematics. Many of the routes connecting abstract mathematical theories to applications in the natural sciences lead through differential equations. Many topics of the theory of differential equations grew so much that they became disciplines in themselves; problems from the theory of differential equations had great significance in the origins of such disciplines as linear algebra, the theory of Lie groups, functional analysis, quantum mechanics, etc. Consequently, differential equations lie at the basis of scientific mathematical philosophy (*Weltanschauung*).

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