

<<积分几何与几何概率>>

图书基本信息

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前言

This monograph is the first in a projected series on Probability Theory. Though its title "Integral Geometry" may appear somewhat unusual in this context it is nevertheless quite appropriate, for Integral Geometry is an outgrowth of what in the olden days was referred to as "geometric probabilities." Originating, as legend has it, with the Buffon needle problem (which after nearly two centuries has lost little of its elegance and appeal), geometric probabilities have run into difficulties culminating in the paradoxes of Bertrand which threatened the fledgling field with banishment from the home of Mathematics. In rescuing it from this fate, Poincaré made the suggestion that the arbitrariness of definition underlying the paradoxes could be removed by tying closer the definition of probability with a geometric group of which it would have to be an invariant. Thus a union of concepts was born that was to become Integral Geometry. It is unfortunate that in the past forty or so years during which Probability Theory experienced its most spectacular rise to mathematical prominence, Integral Geometry has stayed on its fringes. Only quite recently has there been a reawakening of interest among practitioners of Probability Theory in this beautiful and fascinating branch of Mathematics, and thus the book by Professor Santaló, for many years the undisputed leader in the field of Integral Geometry, comes at a most appropriate time. Complete and scholarly, the book also repeatedly belies the popular belief that applicability and elegance are incompatible. Above all the book should remind all of us that Probability Theory is measure theory with a "soul" which in this case is provided not by Physics or by games of chance or by Economics but by the most ancient and noble of all mathematical disciplines, namely Geometry.

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内容概要

Though its title "Integral Geometry" may appear somewhat unusual in this context it is nevertheless quite appropriate, for Integral Geometry is an outgrowth of what in the olden days was referred to as "geometric probabilities." Originating, as legend has it, with the Buffon needle problem (which after nearly two centuries has lost little of its elegance and appeal), geometric probabilities have run into difficulties culminating in the paradoxes of Bertrand which threatened the fledgling field with banishment from the home of Mathematics. In rescuing it from this fate, Poincaré made the suggestion that the arbitrariness of definition underlying the paradoxes could be removed by tying closer the definition of probability with a geometric group of which it would have to be an invariant.

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