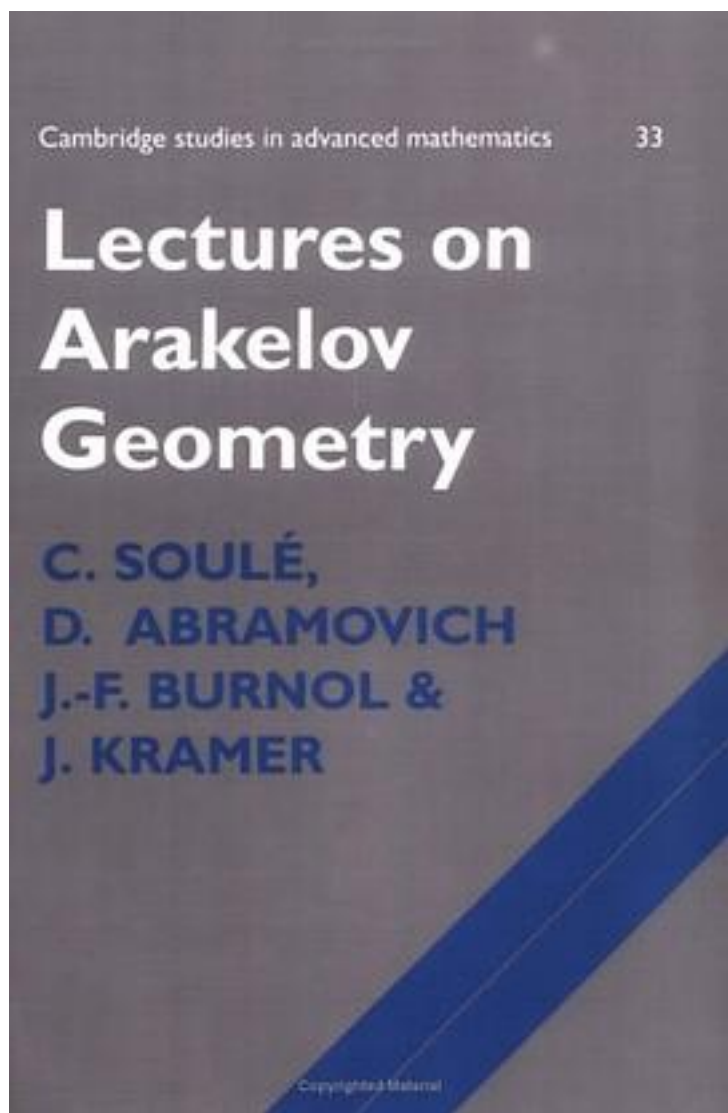# Lectures on Arakelov Geometry

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Arakelov theory is a new geometric approach to diophantine equations. It combines algebraic geometry in the sense of Grothendieck with refined analytic tools such as currents on complex manifolds and the spectrum of Laplace operators. It has been used by Faltings and Vojta in their proofs of outstanding conjectures in diophantine geometry. This account presents the work of Gillet and Soulé, extending Arakelov geometry to higher dimensions. It includes a proof of Serre's conjecture on intersection multiplicities and an arithmetic Riemann-Roch theorem. To aid number theorists, background material on differential geometry is described, but techniques from algebra and analysis are covered as well. Several open problems and research themes are also mentioned. The book is based on lectures given at Harvard University and is aimed at graduate students and researchers in number theory and algebraic geometry. Complex analysts and differential geometers will also find in it a clear account of recent results and applications of their subjects to new areas.

作者介绍:

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