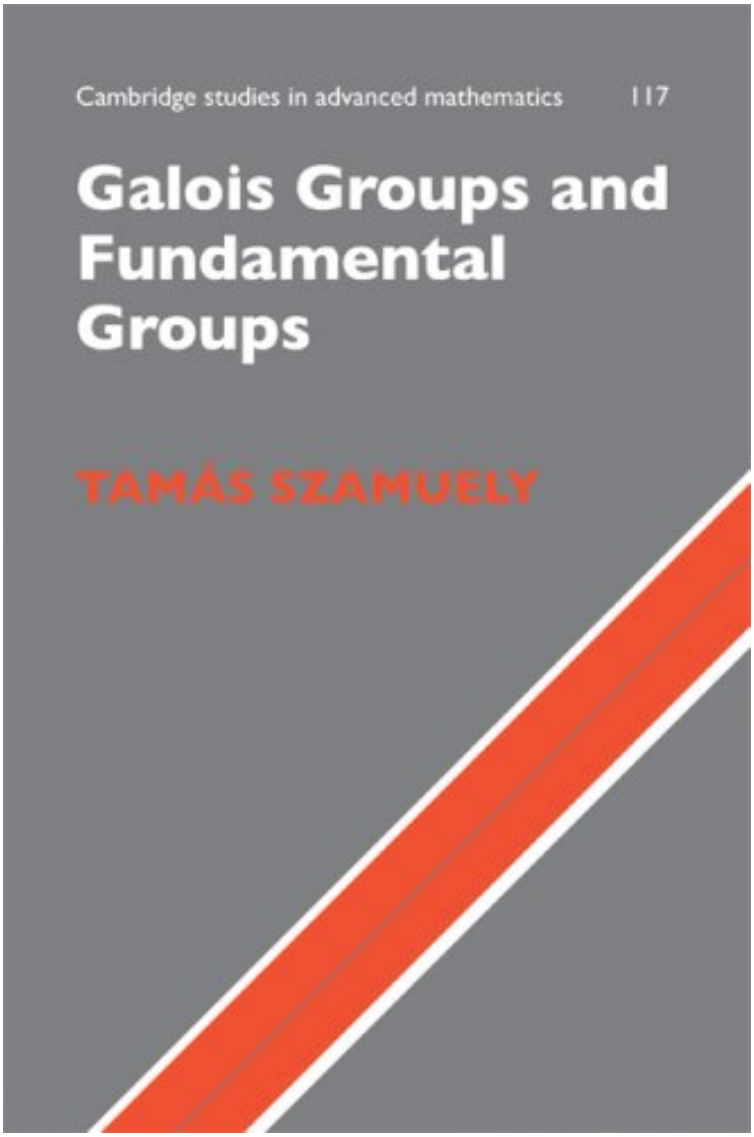
Galois Groups and Fundamental Groups



Par Tams Szamuely
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equations is also developed at increasing levels of generality. Key applications and recent results, for example on the inverse Galois problem, are given throughout.Revue de presse"The book is well written and contains much information about the etale fundamental group. There are exercises in every chapter. On the whole, the book is useful for mathematicians and graduate students looking for one place where they can find information about the etale fundamental group and the related Nori fundamental group scheme." Swaminathan Subramanian, Mathematical sPrsentation de l'diteurEver since the concepts of Galois groups in algebra and fundamental groups in topology emerged during the nineteenth century, mathematicians have known of the strong analogies between the two concepts. This book presents the connection starting at an elementary level, showing how the judicious use of algebraic geometry gives access to the powerful interplay between algebra and topology that underpins much modern research in geometry and number theory. Assuming as little technical background as possible, the book starts with basic algebraic and topological concepts, but already presented from the modern viewpoint advocated by Grothendieck. This enables a systematic yet accessible development of the theories of fundamental groups of algebraic curves, fundamental groups of schemes, and Tannakian fundamental groups. The connection between fundamental groups and linear differential equations is also developed at increasing levels of generality. Key applications and recent results, for example on the inverse Galois problem, are given throughout.