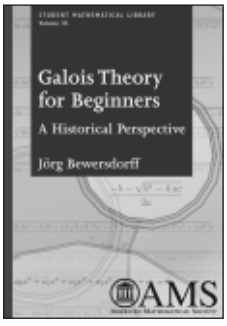
New Publications Offered by the AMS

Algebra and Algebraic Geometry

COURSE ADOPTION



Galois Theory for Beginners

A Historical Perspective

Jörg Bewersdorff

Translated by David Kramer.

Galois theory is the culmination of a centuries-long search for a solution to the classical problem of solving algebraic equations by radicals. In this book, Bewersdorff follows the historical development of the theory, emphasizing concrete examples along the way. As a result, many mathematical abstractions are now seen as the natural consequence of particular investigations.

Few prerequisites are needed beyond general college mathematics, since the necessary ideas and properties of groups and fields are provided as needed. Results in Galois theory are formulated first in a concrete, elementary way, then in the modern form. Each chapter begins with a simple question that gives the reader an idea of the nature and difficulty of what lies ahead. The applications of the theory to geometric constructions, including the ancient problems of squaring the circle, duplicating the cube, and trisecting an angle, and the construction of regular n-gons are also presented.

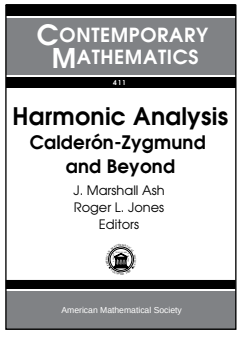
This book is suitable for undergraduates and beginning graduate students.

Contents: Cubic equations; Casus irreducibilis: The birth of the complex numbers; Biquadratic equations; Equations of degree n and their properties; The search for additional solution formulas; Equations that can be reduced in degree; The construction of regular polygons; The solution of equations of the fifth degree; The Galois group of an equation; Algebraic structures and Galois theory; Epilogue; Index.

Student Mathematical Library, Volume 35

October 2006, 180 pages, Softcover, ISBN-10: 0-8218-3817-2, ISBN-13: 978-0-8218-3817-4, LC 2006048423, 2000 *Mathematics Subject Classification*: 12–01; 12F10,
All AMS members US$28, List US$35, Order code STML/35

Analysis



Harmonic Analysis

Calderón-Zygmund and Beyond

J. Marshall Ash and **Roger L. Jones**, *DePaul University, Chicago, IL*, Editors

Starting in the early 1950's, Alberto Calderón, Antoni Zygmund, and their students developed a program in harmonic analysis with far-reaching consequences. The title of these proceedings reflects this broad reach. This book came out of a DePaul University conference honoring Stephen Vági upon his retirement in 2002. Vági was a student of Calderón in the 1960's, when Calderón and Zygmund were at their peak.

Two authors, Kenig and Gatto, were students of Calderón; one, Muckenhoupt, was a student of Zygmund. Two others studied under Zygmund's student Elias Stein. The remaining authors all have close connections with the Calderón–Zygmund school of analysis.

This book should interest specialists in harmonic analysis and those curious to see it applied to partial differential equations and ergodic theory.

In the first article, Adam Korányi summarizes Vági's work. Four additional articles cover various recent developments in harmonic analysis: Eduardo Gatto studies spaces with doubling and non-doubling measures; Cora Sadosky, product spaces; Benjamin Muckenhoupt, Laguerre expansions; and Roger Jones, singular integrals. Charles Fefferman and Carlos Kenig present applications to partial differential equations and Stephen Wainger gives an application to ergodic theory. The final article records some interesting open questions from a problem session that concluded the conference.

Contents: A. Korányi, The work of Stephen Vági; **A. E. Gatto**, On fractional calculus associated to doubling and non-doubling measures; **C. Fefferman**, Fluids and singular integrals; **C. Kenig**, The well-posedness of non-linear dispersive equations: Some recent developments; **C. Sadosky**, The BMO extended family in product spaces; **B. Muckenhoupt**, Mean convergence of Cesàro means of Laguerre expansions; **R. L. Jones**, Variation inequalities for singular integrals and related operators; **S. Wainger**, A maximal function on the