

Preface

This book collects some of the scientific contributions of the participants in the Conference in Harmonic Analysis held at the *Istituto Nazionale di Alta Matematica* from May 30th to June 4th, 2011. It illustrates the wide range of research subjects developed by the Italian research group in harmonic analysis, originally started by Alessandro Figà-Talamanca, to whom the Conference was dedicated on the occasion of his retirement.

In 1978, the mathematicians in this newly formed research group started a cycle of conferences to present and share their research progress. These conferences were held in different places almost every year until this Conference, the thirty-first of the series, and the first whose Proceedings are published.

This book outlines some of the impressive ramifications of the mathematical developments that began when Figà-Talamanca brought the study of harmonic analysis to Italy; the research group that he nurtured has now expanded to cover many areas, and therefore this book is addressed not only to experts in harmonic analysis, summability of Fourier series and singular integrals, but also to experts in potential theory, symmetric spaces, analysis and partial differential equations on Riemannian manifolds, analysis on graphs, trees, buildings and discrete groups, Lie groups and Lie algebras, and even far-reaching applications such as cellular automata and signal processing and connections with mathematical logic.

In the last decades, Alessandro Figà-Talamanca has worked on harmonic analysis on trees, and his influence on ongoing research is also underlined by the fact that several contributions to the present volume, even those dealing with completely different subjects, are related to trees or similar discrete structures.

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<http://www.springer.com/978-88-470-2852-4>

Trends in Harmonic Analysis

Picardello, M.A. (Ed.)

2013, XII, 448 p., Hardcover

ISBN: 978-88-470-2852-4