INEQUALITIES: A JOURNEY INTO LINEAR ANALYSIS

Contains a wealth of inequalities used in linear analysis, and explains in detail how they are used. The book begins with Cauchy's inequality and ends with Grothendieck's inequality, in between one finds the Loomis–Whitney inequality, maximal inequalities, inequalities of Hardy and of Hilbert, hypercontractive and logarithmic Sobolev inequalities, Beckner's inequality, and many, many more. The inequalities are used to obtain properties of function spaces, linear operators between them, and of special classes of operators such as absolutely summing operators.

This textbook complements and fills out standard treatments, providing many diverse applications: for example, the Lebesgue decomposition theorem and the Lebesgue density theorem, the Hilbert transform and other singular integral operators, the martingale convergence theorem, eigenvalue distributions, Lidskii's trace formula, Mercer's theorem and Littlewood's 4/3 theorem.

It will broaden the knowledge of postgraduate and research students, and should also appeal to their teachers, and all who work in linear analysis.

D. J. H. Garling is Emeritus Reader in Mathematical Analysis at the University of Cambridge and a Fellow of St John's College, Cambridge.

INEQUALITIES: A JOURNEY INTO LINEAR ANALYSIS

D. J. H. GARLING

CAMBRIDGE
UNIVERSITY PRESS

CAMBRIDGE UNIVERSITY PRESS
Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo

Cambridge University Press
The Edinburgh Building, Cambridge CB2 8RU, UK

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org
Information on this title: www.cambridge.org/9780521876247

First published 2007

Printed in the United Kingdom at the University Press, Cambridge

A catalogue record for this publication is available from the British Library

Library of Congress Cataloguing in Publication Data

ISBN 978-0-521-87624-7 hardback
ISBN 978-0-521-69973-0 paperback

Garling, D. J. H.
Inequalities: a journey into linear analysis / D. J. H. Garling.
p. cm.
Includes bibliographical references and index.
ISBN 978-0-521-69973-0 (pbk.: alk. paper) – ISBN 978-0-521-87624-7 (hardback: alk. paper) 1. Inequalities (Mathematics) 2. Functional analysis. I. Title.

QA295.G319 2007
515′.26–dc22

2007015539

Cambridge University Press
978-0-521-69973-0 - Inequalities: A Journey into Linear Analysis
D. J. H. Garling
Frontmatter
More information

Contents

Cambridge University Press
978-0-521-69973-0 - Inequalities: A Journey into Linear Analysis
D. J. H. Garling
Frontmatter
More information

Cambridge University Press
978-0-521-69973-0 - Inequalities: A Journey into Linear Analysis
D. J. H. Garling
Frontmatter
More information