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T O   J U T T A

P R E F A C E

In this book some methods from the geometric theory of Banach spaces are used to prove asymptotic estimates for the eigenvalues of certain compact operators, in particular, of integral operators. I have tried to make these notes self-contained and readable by any mathematician or student with basic knowledge of functional analysis. In particular, this book might be useful as a text for a seminar.

Propositions, theorems etc. are referred to (uniquely) by the number of the subsection they appear in. E.g. (theorem) 2.a.6 designates the theorem in Subsection 6 of Section a of Chapter 2.

It is possible to study the main applications to eigenvalues of integral operators (in Chapter 3) after understanding the main two theoretical eigenvalue estimates (2.a.6 and 2.b.1 in Chapter 2) as well as some results on interpolation (in Section 2.c). Clearly, some basic facts (presented in Chapter 1) are also needed.

It is my pleasure to record my gratitude to several mathematicians for valuable comments and proofreading, in particular to M. Defant, H. Jarchow, C. Schütt, M.A. Sofi and F. Zimmermann. I also express my thanks to A. Pietsch to whom many results in this book are due. Introducing the "Weyl numbers", he simplified the proofs of several results which made a more concise presentation possible. Moreover, I had a chance to see the manuscript of his forthcoming book treating similar (as well as other) topics. Further, I am grateful to the editor of this series, I.C. Gohberg, for valuable suggestions and to the Birkhäuser-Verlag for publishing this book. Finally, and in particular, I express my thanks to Mrs. K. Giese who carefully typed the manuscript.

KIEL, October 1985 HERMANN KÖNIG

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