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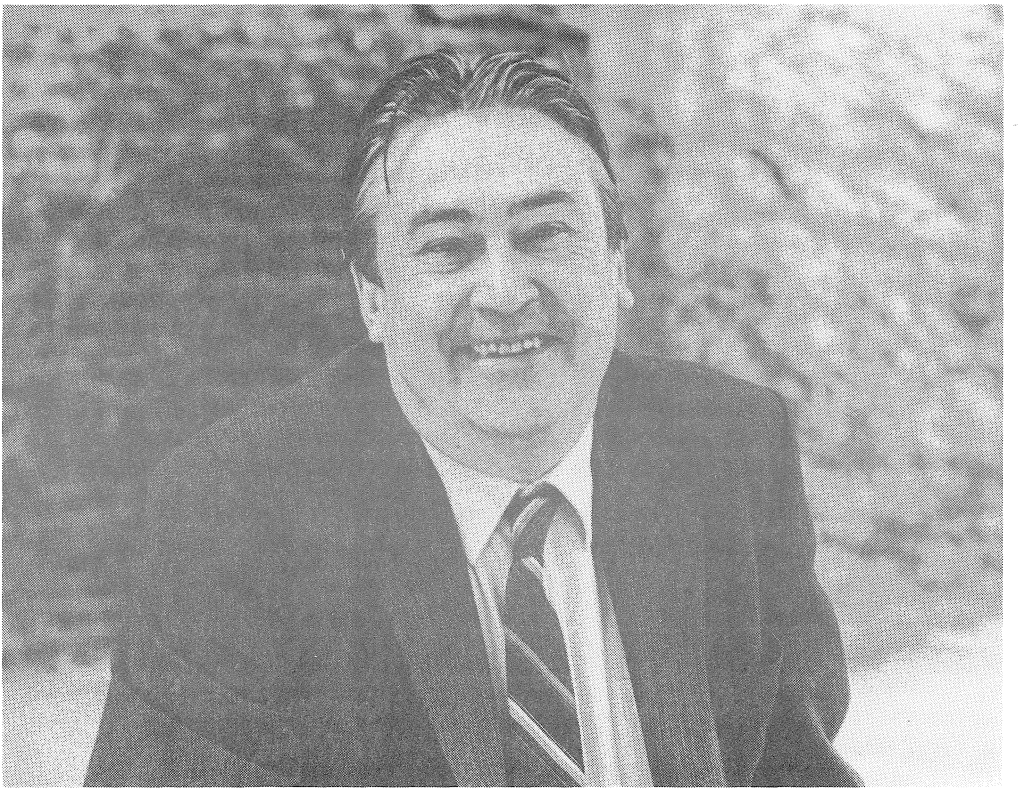

These proceedings are dedicated to Professor Igor Kluvánek.

During 1986 Professor I. Kluvánek resigned his chair of mathematics at the Flinders University of South Australia. His influence on the course of mathematics, at the teaching level and the research level, has been significant and inspiring both in Australia and overseas. He has not only contributed fundamental works of his own but has supervised several graduate students who have gone on to successful mathematical careers. Seven of these former students (B. Jefferies, G. Knowles, C. Meaney, S. Morris, R. Nillsen, S. Okada and W. Ricker) have made contributions to the proceedings of this mini-conference. Other former students include A. Geue, S. McKee, M. Sears and A.K. Whitford.

Igor Kluvánek obtained his first degree, in electrical engineering specializing in vacuum technology, from the Slovak Polytechnic University, Bratislava, in 1953. His first appointment was in the Department of Mathematics of the same institution. At the same time he worked for his C.Sc. degree obtained from the Slovak Academy of Sciences. In the early 60's he joined the Department of Mathematical Analysis of the Šafárik University of Košice. During 1967-68 he held a visiting position at the Flinders University of South Australia. The events of 1968 in Czechoslovakia and some unusual coincidences created circumstances making it impossible for him and his family to return to their homeland. The Flinders University was able to create a chair in applied mathematics to which he was appointed in January 1969 and has occupied until his recent resignation.

Professor Kluvánek has made significant contributions to applied mathematics, functional analysis, operator theory and vector-valued integration. One needs only to consult his book "Vector measures and control systems" written with Greg Knowles [31] or examine the contents and historical notes

of the monograph "Vector Measures" by J. Diestel and J.J. Uhl, Jr., to see that his penetrating studies into this area, of which he is one of the pioneers, pervade the subject. He has also made important contributions to various topics in harmonic analysis. For a sample of his influence in this area we refer to the excellent survey article "Five short stories about the cardinal series", Bull. Amer. Math. Soc., 12(1985), 45-89, by J.R. Higgins which highlights the essential role played by the paper [10] in the "story" of the sampling theorem. In [27] Kluvánek introduced the concept of a closed vector measure. This notion was crucial for his investigations of the range of a vector measure and led to the extension to infinite dimensional spaces of the classical Liapunov convexity theorem, together with many consequences and applications. This work was in collaboration with G. Knowles (see [28, 29, 31, 34], for example) and settled many of the major problems in this area. The notion of a closed vector measure stimulated much research, especially by W. Graves and his students at Chapel Hill, North Carolina. In recent years it has turned out that this notion is not only a basic tool in the study of algebras of operators generated by Boolean algebras of projections but lies at the very core of the major theorems in this area, even throwing a new perspective on the classical results in this field.

As successful as the theory of integration with respect to countably additive vector measures has been in various branches of mathematics, such as mathematical physics, functional analysis and operator theory, for example (see the survey article [37]), it is also known that there are fundamental problems which cannot be treated in this way. Nevertheless, these problems still seem to require for their solution "some sort of integration process". As seen by the references [42, 43, 44] and the paper presented at this conference [45], it is clear that these problems are being vigorously pursued

by Professor Kluvánek. It seems that his resignation has not curtailed his enthusiasm for research.

As well as his research publications listed below it should be mentioned that Professor Kluvánek has co-authored, with L. Mišík and M. Švec, a two volume text book (in Slovak) on Differential and Integral calculus, Analytic geometry, Differential equations and Complex variables which has seen two editions and been widely used in Czechoslovakia. He also wrote lecture notes (in Slovak) with M. Kováříková and Z. Kovářík on first year university analysis and a popular book (also in Slovak) with L. Bukovský on the pigeon-hole principle. In addition, he has written various articles of a pedagogic nature.

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PREFACE

This volume contains the proceedings of a three day miniconference on operator theory and partial differential equations held at Macquarie University in September, 1986, under the sponsorship of the Centre for Mathematical Analysis (Australian National University) whose financial assistance is gratefully acknowledged. It is divided into two parts. The first consists of reports of one hour invited talks. The second is devoted to half hour research reports presented at the conference.

We gratefully acknowledge the support of Professor Neil Trudinger, director of the CMA, and of the contributors to this volume, as well as the superb organizational and typing assistance of Marilyn Gray, Dorothy Nash, Joyce Heinz and Jill Smith.

Brian Jefferies, Alan McIntosh, Werner Ricker (Editors)