

BOOK REVIEWS

Best approximation in normed linear spaces by elements of linear subspaces, by Ivan Singer. Die Grundlehren der mathematischen Wissenschaften, Band 171, Publishing House of the Academy of the Socialist Republic of Romania, Bucharest, 1970 and Springer-Verlag, New York-Heidelberg-Berlin, 1970. 415 pp., \$21.50.

This monograph is a translation (by Radu Georgescu) of the original Romanian version "Cea mai bună aproximare on spații vectoriale normate prin elemente din subspații vectoriale" that was published in 1967. In spite of its language the original was widely used and frequently quoted (cf., e.g., [9] and [10]) by approximation theory people over the world, proving that the demand for this sort of work did exist. There appeared two reviews of it [1], [2] and the second one made the point that "it is unfortunate that a book which has been compiled with much work and care should have no terminological index, no author's index and no index of notations." This remark has been taken into account by the editors of the present edition, and we have obtained all of these indices now. Beside this addition, there are no changes except corrections of minor misprints and errors. Strangely enough, the false (as it was pointed out in [1]) equality before the formula (4.19) Chapter I remained unchanged.

The book deals with this part of the theory described in the title which has the clear-cut geometric interpretation. It is addressed to a large circle of mathematicians ranging from specialists in approximation theory and the constructive theory of functions to those working in "pure" functional analysis and geometry of convex bodies. The reader is required only to be familiar with the elements of functional analysis within the limits of a standard graduate course. The bulk of the material presented in it is due to A. L. Garkavi, R. R. Phelps and the author himself and is taken from their papers published in the decade 1956-1966. However, the ideas may often be traced as far back as to the 1858 P. L. Čebyšev treatise on the motion of certain mechanism or the 1938 N. I. Achieser and M. G. Krein book on the theory of moments, and even more direct influence of V. Klee's geometric conceptions on the development of the subject is also apparent. The deep and elegant but highly analytic theory of Hardy spaces, Mergelyan's results, methods of computation of elements of best approximation, the problem of moments and the problems related to Müntz's theorem are deliberately not included. All the harmonic analysis remains also completely outside the