for further information he should be referred to the longer book by Doob (which is now available but was not when Professor Mann's book was published); there he will find these problems treated in their Hilbert space versions. The particular topics covered by the work under review are (i) the expansion of x_t as a Fourier series in t (with random coefficients) over a finite interval, the Paley-Wiener expansion for the f.r.p. being worked out as an example, and (ii) the mean ergodic theorem.

To summarize: this is a very useful little book and everyone concerned with the subject will want to possess it for the light which a study of it throws on the larger works by Lévy and Doob. But for all its brevity it does not make easy reading; the approach adopted is a difficult one to follow conscientiously; and the reader should be warned that many of the best things now known are not referred to.

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Differential operators and differential equations of infinite order with constant coefficients. Researches in connection with integral functions of finite order. By P. C. Sikkema. Groningen, Noordhoff, 1953. 4+223 pp. 11.50 florins; cloth 13.50 florins.

This monograph is essentially the author's Groningen thesis and describes the results of his researches into the following three general problems. Let $F(D) = \sum_{n=0}^{\infty} a_n D^n$, $D \equiv d/dx$, designate a differential operator of infinite order with constant coefficients, and let $F(D) \rightarrow y(x)$ designate the result of applying $F(D)$ to y, i.e., $F(D) \rightarrow y(x) = \sum_{n=0}^{\infty} a_n y^{(n)}(x)$. (1) Under what conditions does the expression $F(D) \rightarrow y(x)$ possess more than formal meaning? (2) What are the properties of the function $h(x) = F(D) \rightarrow y(x)$? (3) What can be said about the solutions $y(x)$ of the differential equation of infinite order $F(D) \rightarrow y(x) = h(x)$? The functions y and h are restricted in this work to be entire and of finite order, and the theorems obtained relate the properties of F with the order and type properties of y and h. Some of the results yield generalizations of theorems of H. Muggli, I. M. Sheffer, and J. M. Whittaker. The exposition is detailed, and workers in the field will find useful the exactitude with which the author has worked out the statements of his theorems as well as the numerous summaries of previously known results.

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