THE PREDICTION THEORY OF MULTIVARIATE STOCHASTIC PROCESSES, II

THE LINEAR PREDICTOR

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1. Introduction

In this paper we shall obtain a linear predictor for a multivariate discrete parameter stationary stochastic process (S.P.) having a spectral density matrix $\mathbf{F}'$, the eigenvalues of which are bounded above and away from zero. To get this we shall de-

(1) This paper, like Part I [12], contains the research we carried out at the Indian Statistical Institute, Calcutta, during 1955–56, along with some simplifications resulting from later work. We would again like to thank the authorities for the excellent facilities placed at our disposal, and Dr. G. KALLIANPUR for valuable discussions.

Since writing this paper we have learned that some of our results in Part I have been duplicated by H. HELSON and D. LOWDENSLAGER, cf. their paper, "Prediction theory and Fourier series in several variables", to be published in this volume of *Acta Mathematica*. We regret that no reference was made to this fact in Part I. In a recent note [*Proc. Nat. Acad. Sci., U.S.A.*, Vol. 43 (1957) pp. 898–992] M. ROSENBLATT has derived Theorem 7.10 proved by us in Part I, but his derivation is based on an incorrect lemma. To rectify this one would have to go through the steps followed in our Part I.