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MINIMAX PREDICTION PROBLEM FOR MULTIDIMENSIONAL STATIONARY STOCHASTIC SEQUENCES

The considered problem is estimation of the unknown value of the functionals $A\vec{\xi} = \sum_{j=0}^{\infty} \vec{a}(j)\vec{\xi}(j)$ and $A_N\vec{\xi} = \sum_{j=0}^N \vec{a}(j)\vec{\xi}(j)$ which depend on the unknown values of a multidimensional stationary stochastic sequence $\vec{\xi}(j)$ based on observations of the sequence $\vec{\xi}(j)$, $j < 0$, from the class Ξ of sequences which satisfy conditions $E\vec{\xi}(j) = 0$, $\|\vec{\xi}(j)\|^2 \leq P$. The maximum values of the mean-square errors of the optimal estimates of the functionals $A\vec{\xi}$ and $A_N\vec{\xi}$ are found. It is shown that these maximum values of the errors in the class Ξ give the moving average sequences which are determined by eigenvectors of compact operators constructed with the help of the sequence $\vec{a}(j)$.