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Original Articles

On Stability and Trajectory Boundedness in Mean-square Sense for ARMA Processes

Han Fu CHEN

Academy of Mathematics and Systems Science, Chinese Academy of Sciences

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摘要 For the multidimensional ARMA system A(z)y k = C(z)w k it is shown that stability (det A(z) ≠ 0, ?z : |z| ≤ 1) of A(z) is equivalent to the trajectory boundedness in the mean square sense (MSS) lim sup/n→∞ ‖ y_k‖ ~2 < ∞ a.s., which, as a rule, is a consequence of a successful stochastic adaptive control leading the closed-loop of an ARMAX system to a steady state ARMA system. In comparison with existing results the stability condition imposed on C(z) is no longer needed. The only structural requirement on the system is that det A(z) and det C(z) have no unstable common factor.

关键词 ARMA stability boundedness in MSS equivalence
分类号

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通讯作者 Han Fu CHEN hfchen@iss03.iss.ac.cn